NEW REMEDIES.

AN ILLUSTRATED MONTHLY TRADE JOURNAL OF
MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

VOL. IX., NO. 8. WHOLE NO. 74.

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PUBLISHED BY
WILLIAM WOOD & CO., No. 27 Great Jones St., N. Y.

AUGUST, 1880.

SUBSCRIPTION PRICE, per year, - - - - - $2.00
SINGLE COPIES, - - - - - - - - - - .20

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NEW REMEDIES is issued about the middle of each month, dated for the month ahead. Changes of advertisements should reach us before the 5th. New advertisements can occasionally be inserted after the 12th.

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EDITORIAL.

WE have recently received a circular from the Thermometrical Bureau of Yale College (Winchester Observatory), in which attention is called to the work of verification of thermometers recently undertaken by that institution. The necessity for occasionally verifying the accuracy of thermometers in use is not always sufficiently appreciated, and this is especially the case with clinical thermometers, the inaccuracy of which has become almost proverbial.

All thermometers undergo more or less variation in the length of the column of mercury, after the tubes are sealed, which is not dependent upon surrounding temperature. This is so well understood by manufacturers that it is rarely that instruments that are desired to be accurate are graduated until they have been allowed to rest for several months—rarely less than a year. Yet it is presuming little to say that but few of the ordinary clinical thermometers in daily use have ever been subjected to such precautionary measure, but they are graduated very soon after being sealed, and at the end of a few months are utterly unreliable without a statement of their variation from a standard.

On page 255 we publish extracts from the circular referred to, and we hope that the opportunity now offered to become assured of the correct value of such instruments will be appreciated.

WE regret to announce the decease, on Saturday, July 10th, of DR. LUCAS VANDERVEER NEWTON, of New York, at the age of 71 years, after a long illness. Dr. Newton was born at Griggstown, N. J., in 1809. Having served an apprenticeship as printer, he commenced the study of medicine and graduated in 1837, from the Jefferson Medical College of Philadelphia. He went to England, practising several years in London, then returned to the United States, opened an office in Virginia in 1846, and went as a volunteer physician to New Orleans during the epidemic of yellow fever in 1847. Subsequently he exercised his profession in various places in the United States; but, owing to delicate health, he was at last compelled to give up his practice and became assistant editor of the *Druggists' Circular*, started by Henry Bridgman in 1857. This journal passed into his hands, as proprietor and editor, during the month of June, 1858, and he has conducted it with remarkable ability and energy up to the time of his death. A useful life has closed with him, and his loss will be greatly regretted by a large number of friends.

WE are pleased to see that the publisher of the *Index Medicus* has found it possible to continue this extremely valuable periodical. Towards the end of last year it seemed doubtful whether it would receive the patronage which it merits, and which would render its further publication possible. At the dedication of the new Library Hall of the N. Y. Academy of Medicine, in October last, Dr. Billings, under whose supervision it has been compiled, stated that up to that time the subscription list showed that 33 copies were sent to Great Britain, 19 to Germany, 5 to Japan, 1 to France; and in this country 1 went to Georgia, 1 to Maine, 1 to Mississippi, 1 to Missouri, 3 to New Jersey, and only 169 to New York City. This, of course did not include the entire number of subscribers, but it at least showed that in some States the work was not receiving the patronage which its publishers had a right to expect. We know that in this city there are persons who have subscribed to two or more copies in order that the publication of so valuable an index to the current medical literature of the world might not cease; and we sincerely hope that their duty in this matter will be at once appreciated by physicians elsewhere.

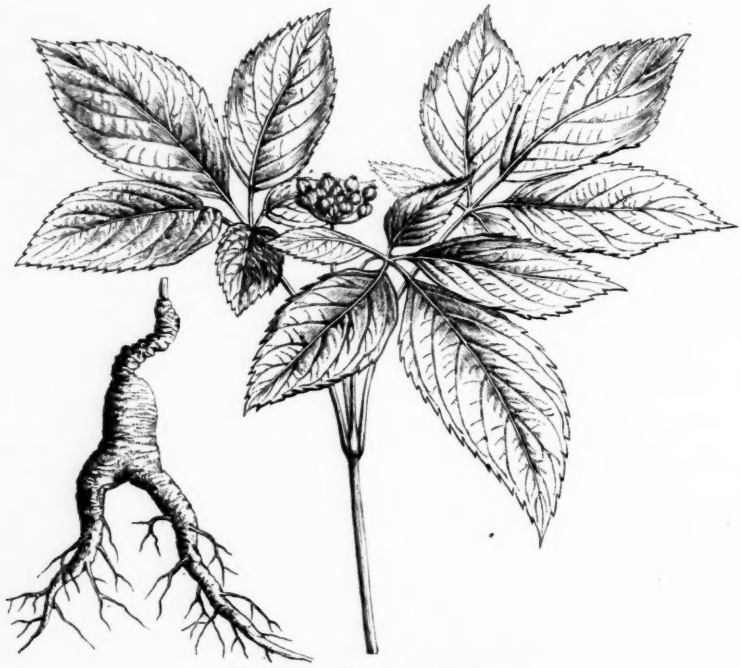
THE attention of our readers is asked to the circular on p. 254 from Professors Joy and Chandler in relation to a memorial medal to be presented to the venerable Professor Wöhler, of Göttingen.

WE are informed that McKesson & Robbins, of this city, have a limited supply of genuine Chian turpentine, which is priced at $2.50 per ounce.

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

On Ginseng Cultivation in Japan.

THE Ginseng plant, *Panax Ginseng* C. A. Meyer (=*Panax Schinseng* Nees v. E.), Japanese: *Ninjin*, a perennial herb belonging to the natural family Araliaceæ, furnishes, in its cylindrical carrot-like roots, an important Oriental medicament, highly esteemed by the Chinese, Coreans, and Japanese. Indeed, to ginseng are ascribed among these people the virtues which we are accustomed to assign to cinchona and partly to musk, namely the power of alleviating fever and debility of all kinds; in fact, it constitutes the most important and most expensive medicine, which is had recourse to even *in extremis*, when all other remedies have failed. Characteristic of the high price as well as the high esteem of ginseng among the Japanese is the proverb: "Ninjin kute kubi kukuru," that is literally: "after ninjin, death by hanging," meaning "ginseng may restore one to health, but (owing to its high price, it causes poverty, and in consequence of this) may lead to self-destruction."—



The Ginseng Plant (Panax Ginseng).

The ginseng plant, with its congeners, all belonging to the genus Aralia, is by most botanists included in a separate family, the Araliaceæ, although there is but little difference between this and those of the umbelliferous plants. Baillon* has thought it preferable to reunite *Aralia* with the family of the Umbelliferæ. The most perfect members of the genus Aralia possess pentamerous flowers; the receptacle, of the form of a deep, ovoid, obconical or sub-turbinate sac, bears upon the borders of its upper orifice a calyx composed of 5 sepals, often obtuse, generally small, and often almost wanting; 5 alternate, oval petals, with inflexed apex; 5 stamens alternating with the petals, and inserted below the border of an epigynous disc,† corresponding to the stylopodium of the Umbelliferæ. Each stamen has a free filament, incurved in the bud and folded upon itself near its summit, so that the anther is introrse not only in the bud while the filament is incurved, but also in the freshly expanded flower, when the filament is straightened and projecting. Besides, the anther is bilocular, and dehiscent by two longitudinal slits. The ovary which is inferior fills the cavity of the receptacle, which envelops it entirely or leaves only its upper portion free. The latter supports a style, divided to a various extent, sometimes

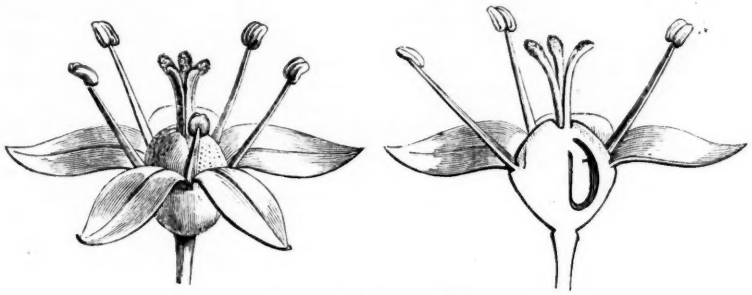
* *Histoire des Plantes*, vol. VII. (Paris, 1880), p. 151.

† In certain species, where the summit of the ovary emerges more or less from the receptacle, it may be seen that it is this apex of the ovule which forms the thick glandular, sometimes colored, tissue. In the flower of *A. japonica*, this part is smooth and yellow. (*Baillon*, l. c., p. 152.)

down to the base, into five branches, each bearing a stigma at its extremity. The ovary contains 5 cells, situated opposite to the petals, each of which contains an axile descending, anatropous ovule, the micropyle of which looks up and down. The fruit is a drupe crowned with the styles and the calyx, or their cicatrices, and containing 5 nuts, each inclosing a descending kernel, covered with very thin integuments, and containing a fleshy or horny albumen, inclosing near its summit a small embryo with superior radicle.—

The ginseng plant grows wild in the shady mountain forests of eastern Asia, from Nepaul to Manchuria; in Japan, however, it has so far been met with only in a cultivated state. In the deep forests of Chinese Manchuria, between 39° and 47° N. L., it was first observed by Father Jartoux. But the roots which are carefully collected there—and which constitute a royal privilege of the imperial house of China—are far from supplying the great demand for the remedy. Hence the plant is extensively cultivated in northern China, Corea, and in Japan. In former years, large quantities were also imported from Philadelphia and Baltimore; but this kind of ginseng was derived from the American species, *Aralia quinquefolia* Gray (=*Panax quinquefolium* L.) growing in the Alleghany mountains. The Japanese choose, for the cultivation of ginseng, a dark rich soil in a dry situation, since the roots are known to grow of a proper size and of a white color only under those circumstances. In soil containing iron they assume a reddish tint and are then much less valued. The well-prepared and carefully manured field is divided into beds, which are usually 27 Jap. feet (8.18 metres) long, 2½ feet wide, and 2 feet distant. They trend from east to west. In order to protect the plants against direct sunlight and violent rainfalls, each is surmounted, at the height of ½ to ⅔ metres (19¾–26 inch.), by a permanent roof of straw resting on poles, which has a slight inclination to the south. This arrangement generally permits plantations of ginseng to be distinguished even at considerable distances.

In southern Japan, for instance in the provinces Idzumo, Hoki, etc., the seeds are planted in November; in the more northern districts, in April. The seeds are placed in the well-hoed and deeply dug beds, at intervals of two to three inches, and at about the same depth, in two parallel rows, distant from each other about one foot. The ginseng plant grows slowly and requires about 3½ years for its full development. Hence the various stages may be observed on different fields, some of them having plants of the first year (ichi-nen shô), plants of two years (ni-nen shô), of three years (san-nen shô), and of four years (shi-nen shô). The plants of the first year have, up to the autumn, only one or two leaves, but no stem. Such a leaf is three-foliolate like that of clover, and, including the petiole, has a length of 8 to 10 cm. The oval pointed leaflets have strongly dentate margins. The cylindrical perennial root is comparatively much more strongly developed. During the second summer the plant grows a plain smooth stem, which is divided above into two or three petioles. The single leaves are now digitate, 5-foliolate and



Flower of the Ginseng Plant.

developed symmetrically, the middle one being the largest. Shape and margin of the leaflets are the same as in the preceding year. The root has about the same length (ab. 12 cm.) as the stem above ground. The latter attains a height of 30–40 cm. During the third summer, and at half its height, it emits a corona of 3 to 5 leaves, each consisting of 5 leaflets which are a little larger, but otherwise of the same shape as in the preceding year. The smooth petioles, as well as the lower part of the stem, have a reddish-brown color. The axis of the plant is continued upwards as a naked greenish shoot from the base of the leaves, to a distance of 10 to 20 cm., and ends in a single umbel at the extreme end, which is sometimes accompanied by a second, smaller one, placed somewhat lower or laterally. The flowering shoot is cut off in the third or fourth summer, except if it is desired to obtain seed. In the latter case, the fruit, when ripe, is a brilliant scarlet-red berry, about the size of a pea, laterally compressed, and containing two grayish seeds of about the size of hemp-seed. After the seed is collected, it is buried about one or two feet deep into the ground,

until the following November or spring, because it has been found that its vitality can be preserved only in this manner.

The ginseng roots are gathered during the *doyo* (=July and August) of the fourth summer. They are cylindrical, not over a finger thick, and are frequently bifurcated below, of a white color, and of an odor and taste recalling that of carrots. The average weight of a fresh ginseng root is 20 to 25 grams; seldom twice as much. After the roots are dug up, they are freed from fibres and other extraneous matters, and carefully washed, then quickly scalded in boiling water or steam, so that a section afterwards has a brownish-yellow and horny appearance. They are then put into a drying apparatus, arranged in 12 trays placed one over the other, the bottoms of which consist of strong paper, and are exposed, for 2 to 8 days, according to their size, to a heat of 100 to 120° C., whereby they are rendered completely dry and marketable. Sometimes they are dried in the sun, which method, however, consumes a much longer time. Dried ginseng-root is yellowish to brown, semi-transparent, somewhat brittle, and has a bitterish-sweet slimy taste. It must be carefully guarded against dampness and small insects (rhynchophori). It is usually employed in form of decoction or extract. The stems and leaves of the plant are boiled to a black tough mush, which has a sweetish taste, mixed with slight bitterness. This mush is not exported.

The prepared ginseng-root is rapidly bought up by dealers, who pay to the Japanese grower 5 to 7 yen (dollars) per kin, or pound of 600 grams. In China the same amount is worth 10 yen (dollars). Manchurian ginseng is still higher in value, particularly a very choice kind, which somewhat resembles amber, and which is often paid for with 6 to 8 times its weight in silver. Since the younger generation of Japanese physicians have begun to employ European methods of treatment, the value and reputation of ginseng in Japan have considerably decreased, so that each year larger quantities become available for export to China. In former years this business was in the hands of the Dutch at Nagasaki; but at present it is mostly carried on directly by Japanese or Chinese shippers and merchants, by way of Osaka. The value of the export amounts annually to about 180,000 dollars. —*Dr. J. J. Rein* in *Peterm. Mittheil., Ergänzungsheft*, No. 59.

Reaction of Potassium Chlorate with Stannous Chloride.—On triturating 2 parts of stannous chloride and 1 part of potassium chlorate, both in fine powder, together in a porcelain-mortar, the mass becomes very hot in a few seconds, and a large amount of steam is given off, together with chlorous acid. The residue is a yellowish-white mass, which, when dissolved in boiling water, deposits, on cooling, beautifully brilliant mica-like crystals of *potassium perchlorate*, while the supernatant milky mother-liquor contains calcium chloride and oxychloride of tin.—*Polyt. Notizbl.* and *Chem. Zeit.*

[Original Communication.]

DAMIANA.

BY J. U. AND C. G. LLOYD.*

Turnera.—*Nat. Ord.* Turneraceæ. The leaves and tops of *Turnera aphrodisiaca* Ward and Vasey. *Common Name*:—Damiana.

History and Description.—This drug was introduced, in 1874, by Dr. F. O. St. Clair,† and first appeared in the form of a fluid extract, from the firm of Messrs. Helmick & Co., of Washington, D. C. Three distinct varieties or species of plants under the name of Damiana are now found upon the market, and are derived from as many different sources. In connection with the history of this drug, it may be stated that Mr. H. S. Wellcome read a paper upon the subject, before the New York Alumni Association of the Philadelphia College of Pharmacy, October 15th, 1875, at the same time exhibiting cuts of leaves, which were known upon the market, at that time, as "Damiana," reproduced by us in *Fig.* 1.

The true Damiana, the kind originally introduced by Dr. F. O. St. Clair, who, we are informed, obtained it from Mr. Eugene Gillespie, the U. S. Consul at Cape San Lucas, is derived from Mexico (see *Fig.* 2). The botanical source of the drug has never been definitely ascertained. It is evidently from a Mexican species of Turnera, supposed, by E. M. Holmes, to be a smooth-leaved variety of *T. microphylla*, D. C. Prof. Lester F. Ward, on the examination of authentic specimens obtained from Dr. St. Clair, concluded that the drug is obtained from an undescribed species of Turnera, which Prof. Vasey and himself designated *Turnera aphrodisiaca*, and this name we shall accept for the Mexican Damiana, until further light is thrown upon the subject. The result of Prof. Ward's examination can be found in the *Virginia Med. Monthly*, April, 1876.

The genus Turnera is a small family of chiefly tropical American plants allied to the Passifloraceæ. The *flowers* are small, yellow, and, in the species that produces Damiana, subsessile near the end of the short branches. The calyx is tubular, hairy externally, colored like the petals, and five-toothed at the apex. The petals are five, yellow, and inserted on the tube of the calyx. The *fruit*, specimens of which are often found with Damiana leaves, are dry, one-celled, globular, and about the size of a large hemp seed (*Fig.* 2, B B). They are warty and rough externally, open by three valves, and contain from three to

[* Written by the authors for the forthcoming supplement to the American Dispensatory, and kindly communicated by them, with the consent of Prof. King.—Ed. N. R.]

† We extend our thanks to Dr. St. Clair for the aid given us in our endeavor to obtain the complete history of this drug, as well as for the specimens of original damiana so kindly furnished by himself. In this connection we can say that the leaves of *Fig.* 2, marked A A are drawn from the original lot of damiana imported by Dr. St. Clair in 1872—L.

six kidney-shaped seeds (*Fig.* 2, C, magnified) attached to three parietal placentæ. Mexican Damiana (*Turnera aphrodisiaca*) as found in the market, consists of broken leaves mixed with fragments of the branches, and, sometimes, with seed-pods. The branches have a reddish-brown bark, and are covered, when young, with white, cottony hairs. The leaves (*Fig.* 2, natural size) are less than an inch long, obovate, wedge-shape, and taper at the base to a short slender leaf-stalk ; when young, they are covered with a slight pubescence, but become smooth when old. They are distinctly pinnately veined, and the margin is toothed with from eight to ten teeth.

A variety of Damiana, closely resembling the preceding, is derived from California. It was ascertained by Mr. E. M. Holmes to be obtained from *Turnera microphylla* D. C., a small shrubby plant, native of Lower California and Northern Mexico. The leaves resemble the Mexican, but are broader, and covered with white hairs on both sides (*Fig.* 1, A).

A second kind of California damiana (also a species of Turnera) has lately made its appearance in the market. We are indebted to Mr. Jas. G. Steele for the fact that this lot of damiana came from San Diego, California, and grew inland, at the southern part of the State. The leaves have the shape of the Mexican damiana, but are larger, and very hairy, and especially underneath (*Fig.* 3, natural size).

The most common drug, however, that is sold in the market under the name of *damiana* is obtained from *Aplopappus discoideus* D. C., a composite plant of the section *Asteroideæ*. It is one of the few rayless species of *Aplopappus*, and is referred by some to the genus *Linosyris*. It has no botanical relation to the true damiana, and can only be considered a sophistication. The leaves (*Fig.* 4, natural size, and Wellcome's *Fig.* 1, B) of this plant, as found in the market, are, thick, firm, and not so much broken up as the Turnera , the surface of the leaf is rough, resinous, dotted, the mid-rib being prominent ; but the veinlets are indistinct. The teeth are toward the apex of the leaf, and are rather remote and sharp. This plant can readily be distinguished from the true damiana by the presence of numerous flower-heads, which are common in all the specimens examined by us (*Fig.* 4, A). They are borne in axillary clusters of from four to six heads. The involucre is bell-shaped, and consists of numerous coriaceous imbricated scales, pubescent on the tips. The achenia (*Fig.* 4, B, magnified) is covered with a dense appressed pubescence, and bears a tawny, scabrous, spreading, unequal pappus.

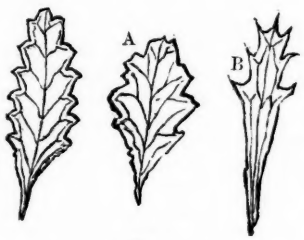


FIG. 1.
Mr. Wellcome's figures of Damiana (*Chicago Pharmacist*).

FIG. 3.
California Damiana. (Species of Turnera.) Natural Size.

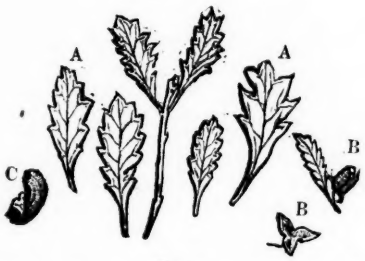


FIG. 2.
Turnera Aphrodisiaca, *Ward* and *Vasey*. (True Damiana.) Nat. size.

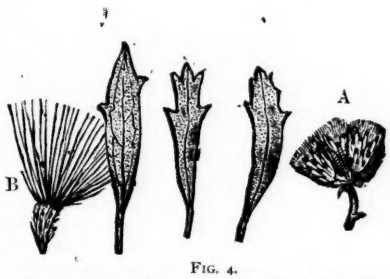


FIG. 4.
Aplopappus Discoideus. (Spurious Damiana.) Natural Size

The sensible properties of the leaves of all the varieties (or species) of Turnera found upon the market, under the name of Damiana, are similar. All have a fragrant odor, resembling lemon balm, and a pleasant, slightly aromatic taste. The leaves impart their virtues readily to hot water, as well as to mixtures of water and alcohol. When distilled with water, the distillate from the leaves yields an essential oil; this oil is lighter than water, possesses the characteristic odor of the plant, and imparts to it its fragrance.

The spurious damiana, *Aplopappus discoideus*

(*Fig.* 4), is entirely different. It resembles more nearly the Grindelias, both in odor and taste. It is very resinous, and imparts its characteristic properties most freely to strong alcohol. Water hardly affects it, and mixtures of water and alcohol imperfectly exhaust the resinous principles, and do not permanently retain in solution such portions as are extracted. This spurious damiana need never be unintentionally employed, as both the general appearance of the leaf, and the sensible characteristics, are entirely different from all the species of Turnera. According to our experience, however, it can be purchased in the market at half the price of true damiana, and those who simply regard cheapness, and the name "damiana," may, when purchasing, expect, as the rule, to receive the spurious article.

The Percentage of Extractive Substances Soluble in Alcohol as a Criterion of the Purity of Spices.

THE author employs the following method: A flask, of about 120 cc. contents, is fitted with a cork, through one of the two holes in which passes the stem of a funnel of about 7 cm. diameter; through the other a tube leading to the top of an upright Liebig's condenser. Five grams of the spice to be tested, previously dried at 30° C., are placed on a filter which should not quite fill the funnel, covered with a disc of filter-paper, and absolute alcohol poured through until the flask is half full. The funnel is then covered with an inverted funnel, the stem of which has been broken off, leaving an aperture through which is passed the lower end of the condenser. The alcohol in the flask is then heated to boiling, and maintained at that temperature until the prolonged percolation of the condensed alcohol through the spice has removed all soluble matters, and the filtrate is colorless. The filter, with its contents, is then partially dried at 100° C., the contents removed to a weighed porcelain dish, thoroughly dried at 100° C., and again weighed. The volatile character of many of the extractive substances (essential oils, etc.) renders it impossible to estimate the residue from the evaporation of the alcohol. Proceeding by the foregoing method, the author has obtained the following percentages of extract from pure spices:

Cloves	33.50
Cassia bark	26.60
Cinnamon (Ceylon)	23.90
Caraway seed	33.87
Fennel	38.20
Black pepper	19.87
Long pepper	37.00
White pepper	16.87
Red pepper	18.13
Coriander seed	14.88
Star-anise	25.68
Anise seed	36.24
Clove pepper	22.68
Mace	37.60
Nutmegs	32.70

—MAX BIECHELE in *Journ. Amer. Chem. Soc.*

[ORIGINAL COMMUNICATION.]

LIQUOR FERRI ACETICI, P. G.

BY R. ROTHER.

IT is surprising that so excellent a one of the milder forms of iron as the ferric acetate should be almost unknown to the practitioners on this side of the Atlantic. German physicians, however, who were educated abroad, use it extensively, and, owing to that fact its use in this country is yearly extending. Ferric acetates are rather unstable salts, being noted for their disposition to decompose into insoluble superbasic and more stable super-acid salts. This instability may have tended to retard its introduction. It was always considered one of the pharmacal difficulties to prepare a good ferric acetate. In the German Pharmacopœia a superbasic, although very soluble ferric acetate is official in two forms, namely: that of a simply aqueous solution, and the other an ethereal tincture. The latter is prepared from the former by mixing nine parts of it with two parts of strong alcohol and one part of acetic ether. The main difficulty, however, consists in first preparing the *Liquor Ferri Acetici*, as it is officially called. This is prepared by precipitating ferric hydrate, by means of dilute ammonia water, from a solution of ferric sulphate, washing the precipitate thoroughly, freeing it from much adhering water by draining and pressure, and then effecting its solution in a requisite amount of acetic acid. The resulting solution contains eight per cent of metallic iron in the condition of a salt, represented by $2Fe(C_2H_3O_2)_3.Fe(OH)_3$, and has a deep brown-red color. If properly prepared it retains its permanence remarkably well, and is usually consumed before decomposition sets in. When made according to the above process, it takes a long time for the ferric hydrate to dissolve entirely, usually some weeks, and often months. As the ferric hydrate must be almost dry before adding the acid, in order to obtain a solution of proper concentration without heat (which agency immediately decomposes it) and as this is a tedious procedure, in fact is especially so when the whole operation is considered, therefore the writer early sought means of avoiding these difficulties. The only soluble ferric oxyhydrate precipitated by ammonia was replaced with great success by the writer's ferric hydrocarbonate, which completely dissolved in the marvellously short period of two hours. But since a required concentration was not reached without using a much desiccated precipitate, the writer adopted another successful improvement in the application of glacial acetic acid, whereby a solution of a greater than the needed concentration resulted. The German official acetic acid contains 30 per cent of the glacial or pure acetic acid, therefore 12 parts or 12 troy ounces of the acid is equivalent to 3.6 troy ounces of glacial acid. 20 troy ounces of the German solution of ferric

sulphate is exactly equivalent to one pint of the U. S. preparation. Hence the transcribed formula by the above-noted improvements for 20 troy ounces of the liquor is as follows:

Take of
Solution of ferric sulphate..... 1 pint.
Di-Sodic carbonate in crystals....15 troy ounces.
Glacial acetic acid... .... 3⅝ troy ounces.
Water, sufficient.

Upon the sodium carbonate, contained in a capacious capsule, pour 4 fluid ounces of the solution of ferric sulphate and apply heat, then pour on the remainder of the solution in rapid succession, 4 fluid ounces at a time, and continue the heat until effervescence ceases; dilute the mixture with 6 to 8 times its volume of water and set it aside, remove the supernatant liquid by means of a siphon and wash the precipitate two or three times more in a similar manner or until barium chloride yields no precipitate with the washings. Pour the precipitate upon a filter after the last decantation and allow the superfluous water to drain off. Add the precipitate to the glacial acetic acid contained in a spacious capsule, stir occasionally until effervescence ceases and complete solution has taken place, add water to the weight of 20 troy ounces and strain the solution through muslin.

DETROIT, MICH.

[ORIGINAL COMMUNICATION.]

MISCELLANEOUS CONTRIBUTIONS FROM THE ORIENT.

BY PROF. XAVIER LANDERER.

Artificial Butter and adulterated Cheese have made their appearance in Greece. The former has been introduced by French dealers in delicacies and finds a ready sale. There is a sort of cheese imported resembling Swiss cheese, which contains considerable quantities of potato starch. After the removal of fatty matters by chloroform, the residue is colored blue by solution of iodine.

A novel Plaster.—Greek wine is very commonly preserved—for want of casks—in lamb, sheep, or goat-skins. Most of the Greek wines intended for domestic use are treated with pitch, in order to better preserve them. In the course of time the pitch is gradually deposited upon the interior of the skin, and, after the wine is used up, this pitch-covered skin is cut up into plasters, which are highly valued. Such a pitch-covered skin is called *ρετζινοτομάρι* (rosin-hide).

The edible Bulbs of Muscari Comosum.—In all Greek markets, and especially in that of Athens, small onion-like bulbs, preserved in vinegar, are sold, which are much esteemed as an easily digestible, slightly laxative article of diet, being generally eaten with meat. Dioscorides mentions them under the name of *βολβὸς ἐδώδιμος* ("eatable bulb;" *Mat. Med.* II., 200).* The Albanians call them *tongöl*, and eat them either boiled or preserved in vinegar.

Argols from Greek wines.—The deposits of Greek wines, formed in casks, which are called *katapatia*, were in former times regularly thrown away and carried out in the sea as refuse. Prof. Landerer, however, showed that these sediments—particularly those of the red wines from the islands Zea, Paros and Santorin—contained sufficient tartar to make its extraction profitable. In consequence thereof, Italian merchants purchase all this refuse and export it to Milan or Naples, where it is utilized in the manufacture of cream of tartar.

Not only the red, but also white wines, and among the latter particularly the so-called "night-wines," yield cream of tartar. These "night-wines," or *κρασία τῆς νυκτὸς* (wine of the night), are so called from the fact that the grapes are cut and expressed at night-time. At the industrial expositions at Olympia these katapatia were found to contain 5 to 8 per cent of tartrates. The other wines of Greece also contain cream of tartar, but, owing to the popular custom of treating the wines, for domestic consumption, with pitch (see the January number of this Jour., p. 6), the residues become useless, so far as the extraction of cream of tartar is concerned. These resinous sediments, which have for centuries been thrown into the sea, have, in some places, produced regular *pitch-islands*, which have remained almost unaffected by the water. Prof. Landerer first drew attention to the possibility of utilizing these deposits, and they are now regularly worked up in factories, yielding large quantities of oil of turpentine and pitch. Yet this industry is capable of large expansion, and needs only capital and energy to bring large returns.

On Fir-cone Resin.—The scales of fir cones exude a resin in drops or tears, which is called in Greece *δάκρυα-ἐλαττοπίσσα* ("tear-fir-resin") and corresponds to "*lachrymæ turionum abieties.*" Fir-trees, the cones of which are thus covered with numerous fragrant and aromatic tears, are much in demand as an ornament for flower-gardens and parks. The resin itself, *ἐλαττοπίσσα*, is used as a popular remedy in blennorhœa, and produces as good and speedy effects as balsam of copaiba, cubebs or oil of sandal.

Fresh Myrtle-berries.—For the same purposes as the last-named, the fresh black berries of the common myrtle are used. They contain an oleoresin and a considerable quantity of tannin.

Easy Conversion of Ferro- into Ferri-cyanide of Potassium.—Heat a solution of ferro-cyanide of potassium, made strongly alkaline, for several hours with a corresponding quantity of peroxide of lead to boiling, filter and evaporate the dark-colored liquid, so that it may crystallize.—*Polyt. Notizbl.*

*See Sprengel's edition, Vol. II., p. 482. Also *Langkavel, Botanik d. späteren Griechen*, 114.

Improved Sulphuretted Hydrogen Apparatus.

In a recently published work, giving a detailed description of the construction and interior arrangements of the new Chemical Institute of the University of Graz,* the arrangements for applying sulphuretted hydrogen, and the apparatus for generating it, are described in the following manner:

The sulphuretted hydrogen room is situated between two laboratories, being accessible from either by doors. Within the room are arranged two mantels or hearths, in which the sulphuretted hydrogen apparatuses are situated, and which may be closed by sliding windows. One of these mantels is furnished with niches constructed of glazed tiles, which are open in front and have a long narrow slit behind, by which they communicate with the draft-chimney. Over each niche is placed a small wash-apparatus chiefly intended for the purpose of enabling the person in charge to see whether any gas-faucet has been inadvertently left open. Besides the regular stop-cock accessible to each worker, each tube contains a second faucet only turnable by a special key in possession of some authorized person, which is so regulated that, even when the other faucet is fully turned on, only a very slow stream of the gas can be obtained. As it is sometimes desirable to pass the gas through warm liquids, there is at the bottom of each niche a gas-burner covered by a tile. In the second mantel, which is intended to receive larger vessels, the niches are left away, and the back of the hearth is provided with a series of long vertical slits communicating with the chimney.

The apparatus for generating the gas consists of a reservoir for the diluted sulphuric acid, Fig. 2, *C*, a flask or balloon containing the ferrous sulphide *A*, and a receiver *B*. The balloon must be packed very carefully to prevent even the smallest pieces of the ferrous sulphide from falling into the receiver, for a reason which will appear directly. The best way to fill the balloon is to first introduce into it a rubber-plug *c* perforated with moderately large holes, then to place upon it a layer of broken glass of the size of peas *b*, and over all a thin, round, imperforated disc of rubber, which almost, but not quite, touches the walls of the balloon. As soon as the ferrous sulphide is exhausted down to a level with the lateral tubulures, the balloon must be recharged

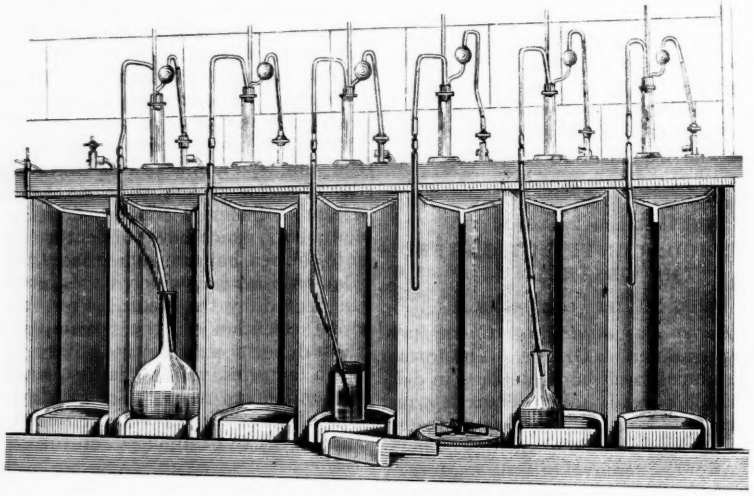


Fig. 1.—Sulphuretted Hydrogen Apparatus.

The balloon itself is held in place by a wooden tripod resting on the receiver *B*. When the apparatus is started, the receiver *B* is nearly filled with diluted sulphuric acid, and an additional amount is put into the reservoir *C*. The receiver is connected with the balloon by the tube *h*. If now the reservoir is hoisted up to an elevated position, as shown in the cut, more acid will flow into the receiver until the latter is full, whence it rises, by the tube *h*, into the balloon, where it decomposes the ferrous sulphide, producing a solution of ferrous sulphate and sulphuretted hydrogen gas. The latter will escape through the tube *f*, which is constructed of lead, and which leads to the sulphuretted hydrogen room. The solution of ferrous sulphate, which is, of course, *specifically heavier* than the diluted acid, descends through the lower opening of the balloon and the rubber-tube extending to near the bottom of the receiver, and will *form a dis-*

* *Das Chemische Institut der k. k. Universität Graz.* Von Leopold von Pebal, Dr. Phil., ord. Prof. d. Chemie, etc. (Herausgegeben von dem Naturwissenschaftlichen Verein für Steiermark.) With 8 tables of illustrations. 4to, Wien, 1880.

tinct layer below the acid. As its volume gradually increases, it will lift up the superincumbent layer of acid and force the latter into the balloon, and the apparatus will continue to act, until the whole receiver is filled with solution of ferrous sulphate. Of course, when the gas is not used, and turned off, its pressure within the apparatus will prevent the access of more acid, and at the same time drive some of it up into the reservoir *C*. Now as it is important for the regular working of the apparatus that only pure acid, unmixed with solution of ferrous sulphate, should come in contact with the ferrous sulphide, and hence the two layers of liquid must be kept unmixed as far as possible, it will be seen that it is necessary to prevent pieces of the sulphide from falling down, as they would generate gas in the liquid in the receiver, and thereby mix the two liquids. As long contact between the two layers would cause them to mix by diffusion, it is necessary to draw off, every evening, the layer of solution of ferrous sulphate formed.

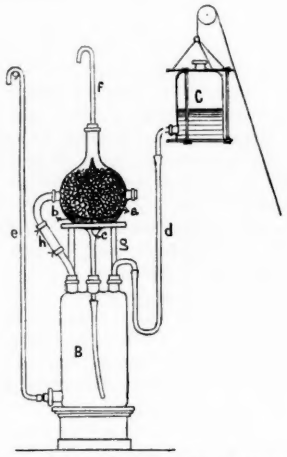


FIG. 2.—Sulphuretted Hydrogen Apparatus.

Prof. Pebal has used this form of apparatus for twelve years and finds it not only the most economical, but also the easiest to control and the least objectionable, as it is odorless if well constructed, and easily cleaned. The rubber-stoppers and tubes are soaked in paraffin; and the fastenings are made by brass wire. Occasionally a current of water must be driven through the apparatus—if it is not very frequently used—to remove the muddy sediment which coats the pieces of ferrous sulphide.

On Preserving and Storing Olive and Other Oils.

THERE are few things which cost the anxious pharmacist more thought and trouble than his stock of oils. It is not so much the time to buy, or the market to buy in, we refer to, important as these points are, as the keeping and storing of the oils after they have been received into stock. Particularly is this the case with the fatty oils, such as cod-liver, olive, castor, and almond. It is necessary for the more delicate purposes for which these oils are commonly required that they be kept constantly bright and sweet; but this, we need scarcely say, is exceedingly difficult where there are so many agencies continually at work to change their nature and lower their quality. Of the oils just mentioned, the almond and castor are the least susceptible to external influences, a fact brought out most strikingly in the treatment which they are made to undergo to fit them for the market. Both of these oils, for example, are more or less bleached by exposure to the sun; and this process of bleaching the oils, as is well known, is continued for days, and is generally conducted in Winchester bottles loosely capped. Now a few hours of this treatment would ruin the finest olive or cod-liver oil. Some time ago we conducted a series of experiments for the purpose of determining the changes which took place in olive oil under various conditions, and we there found that a few hours' exposure of the oil to a summer's sun, in bottles hermetically sealed, was sufficient to produce serious changes in their nature and constitution. These changes were not at first perceptible, either to taste or external appearances, but they passed rapidly into a second stage, in which the oils dimmed in brightness, and to the taste assumed a distinct *nip* or *bite*, instead of the sweet, nutty flavor distinctive of the fresh oil. The same, or at least a very similar *bite*, is very rapidly produced in the cod-liver oil under like conditions, and in both oils the change is much more rapid, quickly passing into decomposition, if they are exposed in open or loosely-covered vessels. It is, therefore, nothing short of ruin to these oils to place them, as is frequently done for show and purposes of sale, in windows or other exposed positions.

We have said that the almond and castor oils are not so susceptible to change; but while saying this we have also reason for asserting that, in the case of the almond oil at least, the bleaching cannot be carried to any extent, most assuredly not to the extent to which it is frequently done, without serious detriment to the oil. We have again and again had reason to observe the marked difference in the soothing properties of a cold cream made from the fresh almond oil, and that made from a pale oil; and this, too, where there was nothing very objectionable either in the taste or smell of the latter. Lister's Boric ointment is another preparation which strikingly brings out the difference between the two oils. We are not aware that notice has ever been taken of the proneness of this ointment to get rancid, even when a fresh and good oil has been employed. But where a pale oil has been used, it will not keep good for many days—we

had almost said hours. It is probably not unimportant that attention should be directed to this, seeing that almond oil has come so much into favor lately in the making of ointments.

Perhaps next to heat and light, the most prolific source of evil to the oils is extreme cold. Not that cold in itself is anything but favorable to the preserving of the oils, but it causes all of them (with the exception of almond, which only thickens under extreme degrees of cold) to thicken and deposit. In dealing with this *margarine* deposit, two mistakes are very often committed, viz., that of decanting the supernatant clear oil, which can only result in very decided loss to the retailer, or that of heating the oil considerably above the normal temperature to take up the deposit, which can only result in deterioration of the quality. It is not always practicable to keep the oils at a uniform temperature, especially in a climate such as ours, where we are often suddenly exposed to extreme changes, but some arrangement may generally be effected. Where other plans fail, we have frequently recommended, and always with approval, the bottling of the oils in sizes suitable either for sale or general consumption, and in quantities sufficient to last the winter, and then wrapping them in several folds of waste paper, of which there is generally plenty lying about. Paper has a wonderful protective power against extremes, both of heat and cold, and a similar reason probably accounts for what many consider the uniform superiority of the olive oil contained in straw-covered flasks. The straw not only protects from extremes in temperature, but it also protects from the decomposing action of the light.

There is another advantage still in having the oils bottled at the beginning of winter, viz., that in the event of their depositing each bottle will contain a proper and uniform proportion of margarine, which can at once be seen and properly dealt with. When oils are stored in tins or casks, it not unfrequently happens that a considerable portion of oil is drawn off before the deposit is noticed. We recently had our attention called to a Winchester quart of such deposit filtered off from a tin of cod-liver oil. In this case there was not the least suspicion of the oil having deposited until the tin was more than half emptied, when it was too late to remedy the evil, and the consequence was a loss of nearly 100 oz. on the tin. Two things may be kept in mind in dealing with an oil which has thickened, viz.: 1st, that the deposit from a certain quantity of oil (where not filtered out) should be taken up again by the same quantity of oil; and 2d, that it can afterwards only be kept clear at a temperature several degrees above that at which it originally thickened. In other words, the deposit from four gallons of oil will not be taken up by two; and where it originally deposited, say at 32° F., it will ever afterwards deposit at a temperature somewhere between 35° and 40°.

Another point on which too much stress cannot be placed is the absolute purity of all vessels into which oil is to be put. Owing to the difficulty of cleansing them thoroughly, as well as to the amount of surface which they present to atmospheric action on drawing off the oils, we think casks and tanks particularly objectionable. Not less objectionable, however, are bottles, however clean, should they contain any trace of moisture. The store-room, likewise, should be dry and airy, not exposed, as already shown, to too much light, nor to extremes of temperature.—*The Chemist and Druggist.*

Methyl Chloride and its Uses.

METHYL CHLORIDE, or the hydrochloric ether of methylic alcohol, is represented by the formula $CH_3Cl = 50.5$. It is gaseous at common temperatures, possesses an ethereal odor and a saccharine taste; its specific gravity is 1.738 (air being 1.0) at 0° C. The weight of a litre of this gas is 2.261 gms. Water dissolves 2.8 volumes of it at 16° C., and at a barometric pressure of 0.765. Glacial acetic acid dissolves 40, and absolute alcohol 35 volumes under the same conditions. Methyl chloride burns with a white flame edged with green, forming water, carbonic acid and large quantities of hydrochloric acid gas. On being compressed, it is easily converted into a colorless and highly mobile liquid boiling at about −23° C. (−9.4° F.). The slight vapor tension of this product renders its liquefaction, its management, and its carriage easy. Thus the tension of its vapor is:

At 0°,	2.48 atmos.	At 25°,	5.62 atmos.
" +15°,	4.11 "	" 30°,	6.50 "
" 20°,	4.81 "	" 35°,	7.50 "

From these figures, 1 atmosphere must be deducted, as the external air surrounding the vessels counterbalances this.

Hitherto chloride of methyl has been prepared by the mutual reaction of common salt, sulphuric acid, and methylic alcohol; but the product has always been contaminated with impurities, the removal of which has been successfully accomplished by Vincent, by means of passing the gas through sulphuric acid. But the same chemist has lately discovered an easy process, by means of which it may be obtained in abundance, and free from impurities.

This process consists in heating the hydrochlorate of trimethylamine, which is obtained industrially from the refuse of beet-root. The hydrochlorate of trimethylamine is thus decomposed. Washing in acid water removes every trace of alkali, and the dried gas may then be liquefied by compression. The product thus obtained, perfectly pure, is manufactured on a large scale by several firms in Europe, as, for instance, by Brigonnet et Fils, at Saint Denis.

Methyl chloride may be used as a frigorific

agent in the laboratory or in manufactures. If it is allowed to enter into an open vessel, it enters into a brisk ebullition for a few moments. Its surface then becomes tranquil, forming a bath at -23° C., into which the objects to be refrigerated may be plunged. If the evaporation is intensified by the injection of dry air, the temperature of the bath may be reduced to -55° C. in a few minutes, so as to freeze mercury. Vincent has designed a small apparatus for the laboratory, in which a bath of 1 litre of an incongealable liquid (*e. g.*, alcohol) may be kept for some hours at a temperature of -23° C., or of -50–55° C. It is composed of a cylindrical copper vessel, with double walls.

Recently, this substance has been used with great success as a menstruum for exhausting the perfumes and fine flavors of certain flowers and other parts of plants. Such an apparatus was constructed first by Vincent and Massignon, calculated to extract several kilos of flowers, etc., at a time. This apparatus consists: 1st. Of a digester, into which the substance to be exhausted is introduced. 2d. A reservoir containing pure methyl chloride. 3d. A receiver or closed vessel, in which the menstruum, saturated with essential oil, etc., is caused to evaporate with the assistance of an air-pump; and 4th. The air-pump itself, which aspirates the vapors of the methyl chloride, and pumps it into a cooling apparatus, from which the methyl chloride is recovered again in a liquid state, flowing into the reservoir. The operation is carried on thus: Having packed the flowers, etc., into the digester or percolator, so arranged that no vapors can escape from it, the liquid methyl chloride is allowed to flow upon the substance from the reservoir, and to remain in contact with it for two minutes, after which the liquid is allowed to run into the receiver (3). This is repeated several times. The receiver is then warmed by means or water at 30° C. (= 86° F.) circulating in pipes around it, or in a steam-jacket, and the air-pump set going, whereby the menstruum is volatilized. As soon as the manometer connected with the air-pump shows an internal pressure of only one-half an atmosphere, the pumping is interrupted, the vessel opened, and at its bottom is found the odoriferous matter mixed with varying quantities of fat and wax. This mixture treated with alcohol yields the perfume peculiar to the plant in its original richness and delicacy. By this method, not only the ordinary essential oils, which are usually extracted by steam, may be prepared, but also those odoriferous substances which are easily altered, and cannot well be prepared by distillation, as the odors of jasmine and violet. The yield obtained by the above method has also been found to exceed any heretofore obtained by about 25%. Massignon is at present constructing an apparatus which permits the daily working of 1,000 kilos of flowers by this process.—After *Chem. News*, June 18th, and *La Nature*, No. 345.

Pinch Stop-cock.

It is frequently of advantage to replace the ordinary, massive stop-cocks, which are apt to get out of order, by pinch-cocks. A very convenient form of the latter is shown in the accompanying figure (I) which needs no further description to make it intelligible.—*Chem. Zeitg.*

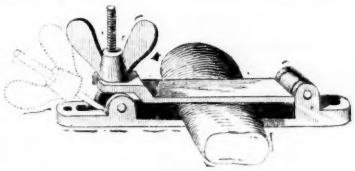


Fig I

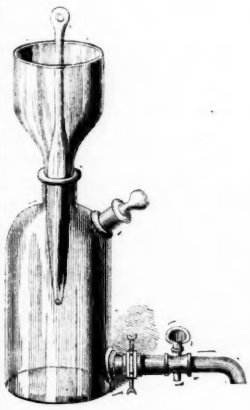


Fig II

Fig III

Fastening Glass Stop-cocks.

In some forms of apparatus, as, for instance, in the apparatus used for purifying mercury, which is illustrated in Fig. II, it is sometimes difficult to prevent the glass stop-cock from being pushed out by the weight of the contents. This may be avoided by providing the outer lip of the neck through which the stop-cock passes, as well as a corresponding shoulder situated on the stop-cock, with a groove, into each of which pieces of wire are wound, the corresponding ends of which are afterwards twisted together.—*Chem. Zeitg.*

Improved Drying Apparatus.

The form illustrated by the cut differs from that usually made, by having, instead of a knob at the upper end, a tubulure through which is inserted a bent bulb-tube with stop-cock, for the purpose of connecting the apparatus with an aspirator. The disc, upon which capsules, etc., are to be placed, is situated some distance below

the edge of the lower vessel, so as to permit even tall beakers to be placed within the apparatus. The edge of the bell-shaped cover is ground upon the shoulder of the lower vessel.

The above forms of apparatus are devised and sold by Dr. Robert Muencke, of Berlin.—*Chemiker Zeitung*, No. 17.

The Estimation of Cane Sugar added to Milk, together with the Water thereby concealed.

(Abstract of a paper by Dr. John Muter, F.C.S., in the *Analyst**).

THE very extensive use of "Milk Improvers" and other similar nostrums, nearly all of which have for their object the defeat of ordinary methods of milk analysis, as well as the constantly increasing practice of making up a short supply by using condensed milk and water, renders it imperative that public analysts should be on their guard as to the presence of cane sugar. Happily the qualitative test is very simple, being that of taste, and it is only necessary to practise for some days the tasting of pure and sugared milk, to render one's self perfectly proficient in detecting as little as 10 per cent of *sugar-water* of 9.3 per cent, which has a gravity corresponding nearly to that of milk, and the addition of which will not reduce the "solids not fats." The presence of sugar being thus suspected, the question of amount has to be settled, and I have thought it would be of general interest to our members that I should detail the process we have now for some time used at the South London Central Public Laboratory for this purpose, by which, as will be seen, the total sugar is directly weighed, and the estimated milk-sugar having been deducted, the difference expresses added sugar. It is as follows:

Ten grams of the milk are poured upon four grams of hydrated calcium sulphate in a basin, and evaporated to perfect dryness, with frequent stirring, so that nothing sticks to the basin. The dry residue is powdered, macerated with ether, thrown on a dried filter over a tared beaker, and percolated with ether till free from fat. The ether is then evaporated off, and the beaker plus fat is weighed, by which the percentage of fat is ascertained.

The contents of the filter are then transferred to a beaker, together with the filter itself, and 20 cc. of hot (but not actually boiling) water are added, and the whole well stirred. 30 cc. of rectified spirit (60° over proof†) are then added, and the mixture is allowed to cool, stirring occasionally. When cool, it is thrown on a filter, placed over a long graduated measure, and washed with proof spirit (2 parts by volume of water and 3 of 60 o. p. spirit), until the filtrate measures 120 cc., at which point extraction is usually complete. The filtrate is then divided into two equal parts, one portion of which is evaporated in a platinum dish, and then placed in the drying oven at 212° F. till constant in weight. The weight is noted, and the dish and contents are ignited for some time at a dull red heat, and again weighed, when the total weight, less that of the dish, plus ash, gives total sugar, which is multiplied by 20 to get percentage. The other portion of the filtrate has meanwhile been evaporated on the water-bath until the smell of spirit has passed off, and it is then washed into a large beaker, diluted with boiling water to 200 cc., treated with boiling "Fehling," and the milk-sugar is estimated by weighing the reduced cuprous oxide. The weight of milk-sugar thus found is then deducted from the total sugar, and the difference (if over 0.5) is put down as cane sugar.

If over 0.5 and under 1.0, a rebate of 0.2 per cent; and, if over 1 but under 1.5, an allowance of 0.1 is to be made; but, if the sugar reaches over 2 per cent, it may be taken as it stands. [The author adduces examples as proof.] It is, therefore, evident that by allowing the extreme limit of 0.5 before condemning a milk, we may guard entirely against risk of error.

The process is reliable within an extreme of 0.3 per cent, which is really, I believe, due to the difficulty of getting a perfect ash without either, on the one hand, leaving some charcoal, or, on the other, volatilizing some chlorides.

The analysis of the milk is completed by taking a total residue and ash in the usual way. As an example how nearly the added water may be calculated, may be cited the following analysis of a sample, containing 90 per cent of pure milk:

Total solids	12.39
Fat	2.90
Solids not fat	9.39
Ash	.71

To be corrected as follows:

Apparent solids, not fat	9.39
Cane sugar found	1.11
True solids found	8.28

then: $\frac{8.28 \times 100}{9} = 92\%$ milk by the Society of Public Analysts limit,

or: $\frac{8.28 \times 100}{9.3} = 89\%$ milk by Mr. Wanklyn's standard.

As it was only a 90-per-cent milk, the adulteration would have escaped notice if not examined by this process. It should be remembered that, *if after proper training* of the palate, you *cannot taste sugar* in a sample, there is no use seeking for it; and, indeed, to do so is to invite chances of error.

* Vol. V., p. 37; March, 1880.

† Alcohol of 60 per cent *over proof* is alcohol of such a strength that 100 measures at 60° F., when diluted with water to 160 volumes, would produce *proof spirit*, or alcohol of the spec. gr. 0.91984 at 15.5° C., containing 49.24 per cent by weight of absolute alcohol. 60 per cent o. p. alcohol, therefore, has a spec. gr. of 0.830, and contains 87.30 per cent by weight, or 91.25 per cent by volume of absolute alcohol.—ED. N. R.

I may mention that I am now experimenting on an inversion process, having, I believe, substantiated the fact that lactose does not invert into galactose by the ordinary method used with the sugar polariscope, viz.: heating 50 cc. sugar-solution to 68° C. with 5 cc. of fuming HCl; but my results are not sufficiently advanced to warrant any change in our process, and I doubt if the double determination of sugar will prove any advantage over the evaporation method as detailed in this paper, seeing that we cannot use "Fehling" volumetrically with any real degree of certainty.

New Method of Testing Butter for Foreign Fats.

BY J. KOETTSTORFFER.

THE investigations by Hehner's* method prove that butter contains a larger proportion of fatty acids with not more than ten atoms of carbon in their molecule than was previously assumed; and since the molecules of most other fatty substances contain a greater amount of carbon atoms, it is evident that a given weight of butter must comprise a greater number of molecules than an equal weight of any of these other fats. Hence, on determining the amount of potassium hydrate necessary for saponifying a given weight of different fatty substances, butter is found to require more standard alkalies than the fats used for its adulteration. This method of titrating all the fatty acids present is preferable to Hehner's, on account of its greater simplicity and rapidity of execution, half an hour sufficing for the execution of an analysis when the standard solutions are in readiness. The standard solutions employed are a *decinormal* hydrochloric acid, and potassium hydrate dissolved in highly rectified spirit to about the same strength. As an indicator, a measured quantity of very dilute alcoholic solution of *phenol-phthalein* is added. The process is carried out as follows: After purifying the fat by repeated fusion and filtration, from one 1 to 2 grams of it are weighed into a tall beaker of about 70 cc. capacity; 25 cc. of the titrated potassium hydrate solution is added, and the beaker is heated in a water-bath.

When the spirit is nearly boiling, the contents are stirred for a minute with a glass rod to cause the fat to dissolve. The rod is rinsed with spirit into the beaker and laid carefully aside, the beaker meanwhile being covered with a watch-glass, and heated short of violent ebullition for a quarter of an hour. The watch-glass is then rinsed with alcohol into the beaker, and the contents once more stirred with the glass rod for a minute to saponify any particles of fat still adhering to the rod. After removing the beaker from the water-bath, 1 cc. of phenol-phthalein solution is added, and the excess of alkali titrated with the standard acid; the change of color to pure yellow sharply indicates the end of the reaction. Heating for 5 minutes only, as recommended by Hehner, is not always sufficient to complete the saponification. The strength of the alkali solution should be fixed by titrations with the standard acid, after 25 cc. have been heated in the above process for 15 minutes, since a slight oxidation of the spirit occurs during the heating which somewhat lessens its titre, about 0.1 cc. less of acid being required by the 25 cc.; the alkali solution suffers about an equal alteration by standing five or six days at ordinary temperature, hence it must be controlled from time to time. Standard sulphuric acid cannot be used, since the potassium sulphate formed during the titration is insoluble in alcohol, and the separated crystals interfere with the accurate observation of the final reaction.

The author expresses the quantity of potassium hydrate required for 1 gram of fat in milligrams, since the number thus used was found to be constant in repeated analysis. The number of milligrams of potassium hydrate neutralized by 1 gram of butter was found to vary in different samples between 221.5 and 232.4, giving a difference of 10.9. The fats used for adulterating butter and for making artificial butter gave lower numbers. Stearin gives by calculation 188.8, oleïn, 190.0, and palmitin, 208.0; and since these are the principal constituents of the fats, it would be anticipated that the results given by them in the new process must be lower than that yielded by butter. The numbers yielded by beef suet, tallow, lard, and mutton suet varied between 195.4 and 197; whilst for olive oil 191.8, and for rape-seed oil 178.7 were the results. The difference between the highest of these numbers and that for butter is sufficient to allow of an approximate calculation of the percentage of adulteration.

From an artificial butter consisting almost entirely of oleo-margarin, it was calculated that the number for pure oleo-margarin would be 195.5, and since lard yields almost the same number, and oleo-margarin and lard are the most common adulterants of butter, 195.5 may be taken as the number to form the basis for calculation of adulteration.

Since the numbers for pure butter vary between 221.5 and 232.4, a butter which yielded a number not lower than 221.5 must be considered to be unadulterated. If the number be lower than 221.5, the percentage of adulteration is estimated from the equation: $x=(227-n)\,3.17$, in which x is the percentage required, n the number obtained for the sample analyzed, and 227 is the mean number for pure butter. Owing to the variations exhibited by pure butter, an error of 10 per cent in the calculation of percentage adulteration is possible; and assuming that butter of 232.4 has been adulterated down to 221.5, 29 per cent of foreign fats may be introduced and remain undetected. By Hehner's method, however, as much as 40 per cent may escape

* See NEW REM., 1878, 49; 83.

detection. This process of quantitative saponification may be probably employed to distinguish between different fats and oils, and to detect adulteration of one oil or fat by addition of another.—*Zeitsch. f. anal. Chem.*, 1879, 199, and *Journ. Chem. Soc.*, Nov., 1879, 983.

Treatment of Phthisis by Inhalation of Borax and Salicylic Acid.

Dr. Müller, a Berlin chemist, lays claim to the priority in the employment of antiseptic inhalations in the treatment of phthisis. He states that he recommended inhalations of borax and salicylic acid in a case of phthisis in 1876, and that his suggestion was carried into effect by Dr. Sachse, of Berlin, with remarkable success. He was led to make this suggestion by the theory that in pulmonary phthisis a portion of the lungs is in a state of decomposition, or of alkaline fermentation, and as similar processes in open wounds are controlled by antiseptics, so the inhalation of antiseptics might be expected to exert an inhibitory action on the morbid processes in the lungs, and thus effect a cure. He recommended for this purpose salicylic acid, which was made easily soluble by the addition of borax. This combination is quite as powerfully antiseptic as the benzoate of sodium, and is, he believes, preferable to it, because it acts more energetically on the alkaline fermentation in the lungs, and produces no deleterious effects. The solution he recommended was 750 parts water, 25 parts salicylic acid, and 19½ parts borax.

Dr. Sachse, in an open letter, confirms the claims of Dr. Müller, and states that he has since employed the borax-salicylic acid inhalations in a number of cases, of which he gives brief accounts, with, on the whole, very satisfactory results. He uses a solution of 2 parts borax, 2½ parts salicylic acid, and 100 to 150 parts hot water, and orders the inhalations to be practised morning and evening for five or ten minutes, instructing the patient not only to inspire deeply, but particularly to make deep and prolonged expirations. The inhalations often caused, at first, cough and a slight burning sensation in the neek, and some of the patients complained of loss of appetite, due to swallowing a good deal of the fluid. In such cases the solution was diluted with an equal quantity of hot water, until the patients became accustomed to it. The taste of the solution is very bitter and unpleasant. No hæmoptysis occurred in any of the cases after the inhalations.—*Allg. Med. Central-Zeit.*

A New Method of Assaying Reduced Iron.

Dr. G. Vulpius, of Heidelberg, bases a new and handy method for the assay of reduced iron on the well-known fact that metallic iron, when treated with a solution of sulphate of copper, eliminates from the latter an exactly equivalent quantity of metallic copper. Yet it is not convenient to abbreviate the operation by merely bringing together the reduced iron and copper solution, because the former is never quite pure, and always leaves an insoluble residue which will be mixed up with the metallic copper liberated, and cannot well be separated from it. But by a simple modification this drawback can be entirely avoided.

On digesting a weighed quantity of reduced iron for one hour with an *excess* of a slightly acidified solution of sulphate of copper of known strength, all the metallic iron will go into solution and there will be a sediment of the insoluble matter contained in the iron together with metallic copper. If the whole is now passed through a filter and the latter washed with a little distilled water, the clear filtrate will contain all that portion of sulphate of copper which was not reduced by the reduced iron. This clear filtrate is now again subjected to reduction by warming it with an excess of *pure* iron (powdered or reduced), about 10 per cent of pure concentrated sulphuric acid having previously been added to the liquid. Under these circumstances, all the sulphate of copper is reduced, and metallic copper alone is precipitated. The latter is washed, dried, and weighed. Its weight deducted from the total copper contained in the original amount of sulphate of copper taken, gives the amount of metallic copper first reduced by the sample of reduced iron ; and hence, by a simple calculation, the percentage of pure iron in the latter is ascertained.

The author recommends the following detailed process. Dissolve 5 gm. of recrystallized sulphate of copper—containing 1.271 gm. of metal—in 25 gm. of water. Add to this solution, contained in a small flask, 1 gm. of the reduced iron to be examined and 2 drops of diluted sulphuric acid (1 : 5), and digest the mixture during one hour at a gentle heat, frequently shaking. Filter from the separated metallic copper and the residuary undissolved ferroso-ferric oxide, into a small dry and tared flask with rather wide neck, of the capacity of 75 cc., and pass enough distilled water through the filter to obtain 50 gm. of filtrate. Introduce into this 1 gm. of *pure* powdered or reduced iron,—or, if this is not available, an equal quantity of a powdered or reduced iron, the "insoluble" percentage of which is known *—and apply a very gentle heat. After about one hour, all the copper is reduced, and the liquid has changed its blue tint to a green one. Now add 5 gm. of pure concentrated sulphuric acid, and heat slowly to boiling, when all the residuary iron will go into solution under brisk evolution of hydrogen, and only the metallic copper—eventually accompanied by the slight percentage of carbon in the

* On an average, this amounts to 1 per cent, in the purest metallic iron.

iron—will remain. The precipitate is now washed, in the flask, until the washings are no longer made turbid by chloride of barium, after which it is rinsed successively with alcohol, absolute alcohol, and ether. The flask is dried by holding it a few minutes over the water-bath, and by some further heating over boiling water the copper is rendered absolutely dry. It should be weighed immediately afterwards, to prevent oxidation. From the ascertained weight of the reduced copper, 0.01 gm. are deducted (for admixed carbon from the iron), and the remainder is subtracted from 1.271, which represents the total amount of metal contained in the original 5 gm. of sulphate of copper. The remainder indicates that amount of iron equivalent to the copper first reduced. Expressed in centigrams, the figure obtained represents the percentage of pure iron in the sample under examination.—From *Arch. d. Pharm.*, Dec., 1879.

Analyses of Some Hair-Dyes.

BEING solicited to ascertain for some clients in Portugal the general composition of the various hair-dyes largely sold, and I suppose used, in England, I have from time to time submitted specimens to analysis; the results may be of some interest to your readers.

The dyes may be classified as those for making the hair dark, and those for making it light, though this latter operation consists in bleaching, not dyeing, the hair.

For making the hair light I have found that the material used is peroxide of hydrogen, sold under numberless fanciful names, and usually at extravagantly fanciful prices. It is perfectly harmless to the hair, its action being limited apparently to the oxidation of the coloring matter. It appears to be without action upon "red" hair; other materials, such as permanganate of potash, dilute nitric acid, and strong ammonia, exercising a more or less bleaching effect, and, though destructive to the hair, have been sold; but they appear to have been completely displaced by the peroxide of hydrogen.

The substances used for making the hair dark, the true dyes, seem, so far as my experiments go, to be limited to solutions of lead, silver, and copper.

Of the lead solutions, that of the hyposulphite is about the best. I found the sample I analyzed had been prepared by mixing acetate of lead with an excess of hyposulphite of sodium, the solution containing glycerin and a little alcohol. After accurately determining the amount of lead, and approximately the amounts of the other constituents, I successfully imitated the original by the following formula:

Acetate of lead	5.7 grms.
Hyposulphite of sodium	11.5 "
Glycerin	50 c. c.
Alcohol	100.0 "
Distilled water	850.0 "

The salts being separately dissolved, and the glycerin and alcohol mixed with the hyposulphite, the solution of lead was then gradually poured into the mixture. The resulting compound should be kept in the dark.

Another consisted simply of a solution of oxide of lead and glycerin, with precipitated sulphur in suspension; its composition being:

Oxide of lead	17 0 grms.
Glycerin	300.0 "
Water	to 1 litre.
Precipitated sulphur	17.0 grms. in 1 litre.

A third closely resembled this, being composed as follows:

Acetate of lead	12.5 grms.
Glycerin	125.0 "
Distilled water	to 1 litre
Precipitated sulphur	10.0 grms.

This was stated to be unsatisfactory in its action. The last which I shall mention of the lead dyes consisted of a very dilute solution of lead in caustic potash. I was enabled to imitate it after analysis by dissolving 1.25 grms. of acetate of lead in hot water, and adding thereto a hot freshly-prepared solution of caustic potash, until the precipitate at first formed *just* re-dissolved, and then diluting that solution up to 1 litre.

The perfume of these liquids is due to the employment of scented waters, prepared either by distillation, or after an alternative method, such as that given in the "Pharmacopœia."—J. F. BRAGA in *Chem. News*, June 18th, 1880.

Bottling Carbonated Waters.—In the *Chemist and Druggist* of June 15th is a communication from Mr. John Briggs, of Hayward, Tyler & Co., of London, manufacturers of machinery for carbonating beverages, on the subject of the pressure employed for this purpose. An experience of more than forty years in this business has convinced Mr. Briggs that the opinion that a high pressure produces the best results is erroneous. The pressure of 120 lbs., commonly used, results, he believes, in wastage of gas in easing the bottle before inserting the cork, and it also causes loss in breakage, and unnecessary consumption of materials used for generating the gas. He has for some time past been engaged in a series of experiments on this subject, the details of which may be found in the original paper, and he draws from them the conclusion that the uniform bottling pressure should be 90 to 100 lbs., and, also, that soda-water makers should provide themselves with a small testing gauge to try the pressure occasionally in the bottles when the men are at work, to see that the pressure in the bottles is kept up to the standard, which should be about 40 lbs. Even a lower pressure than 40 lbs., however, produces a water quite satisfactory to general customers.

[In an article which we published some time since on the subject of carbonated drinks, it was shown that the force with which the fluid is expelled at high pressure, by agitating its particles, favors the rapid escape of gas, and that for this reason a water drawn at relatively low pressure and cold, with pains taken to avoid much commotion of its particles, will continue sparkling longer than one escaping under high pressure. The risk of explosion of apparatus is an item very well worthy of consideration in this connection.—ED. N. R.]

Pelletier's Quinine Factory, in Paris, the largest of its kind on the Continent of Europe, has lately been destroyed by fire.

CORRESPONDENCE.

THE EQUALIZATION OF DOSES IN MEDICINE.

Observations on a Rational System of fixing the Strength of Medicinal Preparations.

BY OSCAR OLDBERG, PHAR. D.,

Medical Purveyor, U. S. Marine Hospital Service.

The medicinal agents prescribed by physicians number about a thousand. Their average adult doses range from about $\frac{1}{300}$ troy grain to several troy ounces, from less than one minim to more than one fluid ounce. The prescriber must carry in his memory the doses of all the several remedies he is in the habit of using; and the doses of those which he rarely employs he must as a rule learn from his books each time he wants to use them.

How greatly his labor would be lightened if the posological strength of all the medicinal agents were precisely the same! What convenience and safety there would be in prescribing, if the safe and ordinary average adult dose of each and every medicinal substance he uses were the same! It is to be regretted that the actual state of things in reference to posology is just the reverse of that simplicity and uniformity, and that to bring them all to one approximately correct standard dose is impossible. But much can be done to simplify and equalize the doses of the important and active remedies, so that the average dose of each shall be one of—say ten to twenty fixed quantities by weight or measure, according to the nature of each. This is quite practicable, pharmaceutically, and should in the writer's opinion be accomplished as far as possible. The practical advantages of this equalization of doses can scarcely be overestimated.

The arbitrary mathematical proportions adopted in pharmaceutical formulæ are valuable only on account of their greater or less simplicity and uniformity. There is no reason for making tinctures from one part drug to five, eight, ten or twenty parts menstruum, or from four troy ounces drug to two pints finished product, beyond the fact that these proportions may be easily remembered if they are uniformly applied, or nearly so. The same is true of the strength of the fluid extracts; it is popular only because it is simple and readily remembered. Even the adoption of uniform and simple percentages would not have any value beyond the readiness with which an arbitrarily fixed number may be remembered, thus aiding us in recalling the proportionate strength of the preparation.

The crude drugs, their isolated active constituents, and the chemicals, in other words, all the simple remedies used, vary many thousand per cent in their posological powers, and if as many as a half dozen here and there are found to have about the same dose, it is simply accidental. To adopt purely mathematical uniform proportions, therefore, in making dilutions, solutions, tinctures, and other preparations of these substances, necessarily preserves the complicated and varying doses of the active constituents in the resulting products. Thus the dose of one tincture is only 10 minims, while that of another is a fluid ounce, the dose of one fluid extract is two minims, while that of another is one-half fluid ounce, etc., etc., an endless variety in degree of potency, as expressed by the accepted hypothetical average dose. Such a plan carries with it the sure defeat of otherwise possible approximate uniformity within a few posological groups.

The rational rule, on the contrary, would be as follows: *The proportion of active constituent to diluent or menstruum should be in inverse ratio to the posological potency of that active constituent.*

Thus the tinctures made from potent drugs should be weak tinctures, and *vice versa*.

Most drugs and preparations can be diluted, or concentrated, or prepared in such manner that the dose of the product shall be one of the following quantities: 0.1, 0.5, 1, 2, 5, or 10 grams, or the same fractions or multiples of the cubic centimetre.

To make a preparation the average dose of which shall be a decigram, let the percentage strength of it be the number of milligrams representing the average dose of the active ingredient; to make a preparation the dose of which shall be one gram, let the percentage strength be expressed by the number of centigrams representing the average dose of the active constituent, and so on. The rules by which the true proportions are arrived at, it will be seen, are exceedingly simple.

To illustrate: Instead o making a *lactose of elaterin** containing 10 per cent of elaterin, I should make one containing 4 parts elaterin and 96 parts milk-sugar, the average adult dose of the product being then one decigram (the average dose of elaterin being 0.004 gram). Of every medicinal substance (capable of being incorporated with milk-sugar in the form of powder to form a good preparation pharmaceutically), the dose of which is about 65 milligrams (or "mills"), I should make lactoses containing 65 per cent, etc.

It will at once be seen that a preparation having a given average dose may be made of any medicinal substance the average dose of which is less than that of the proposed preparation.

The objection that might be urged against preparations of this character (which might be termed *posological preparations*), is that in order to be able to make them at all, it is of course necessary to adopt, *for this purpose*, a fixed hypothetical average dose of each and every active substance from which they are to be made.

In the Sixth Decennial Pharmacopœial Convention the Committee to report a plan for the revision of the Pharmacopœia discussed the proposition to introduce in the latter a table of maximum doses, which was strongly opposed by some of the physicians on that Committee. The writer, however, is not prepared to say whether the defeat of that proposition, and the adoption of a motion that all therapeutic discussion be excluded from the Pharmacopœia, were the results of intelligent conviction or of apathy, for it is quite possible that others in common with the writer did not deem the proposed table of sufficient importance to urge its adoption against opposition. But those who object to the adoption of fixed average doses, must, in order to be consistent, object to posology *in toto*, to do which is to object to the only practical safeguard we have against the danger of overdoses. All posology is purely empirical. Why, then, it may be asked, should not the Pharmacopœia contain the safe and ordinary average adult dose of each and every remedy for internal use, to be agreed upon by competent authorities? This would unmistakably be of greater value than the fragmentary and sometimes conflicting statements given by individual authors of books containing such information. Besides, for the construction of formulæ for making posological preparations it is not such a serious matter that the hypothetical average dose cannot be fixed with great nicety, as the object is solely to bring the medicinal preparations sufficiently near each other in posological potency to enable their classification into a comparatively few groups, the representatives of each of which shall have about the same average adult dose. It is, of course, not intended to say arbitrarily that a dose of opium is one grain and not a particle more nor less; but it is intended to say that for the purpose of making posological preparations it is very convenient and quite safe to assume that a certain fixed quantity of opium is the ordinary average adult dose. The elasticity of the dose, or the freedom with which the practitioner may prescribe more or less of any particular therapeutic agent would not be thereby abridged in any way. If one centi-

* *Lactosum Elaterini.* In the Report of the Committee on the Revision of the U. S. Ph., of the Amer. Pharm. Assoc., published by Charles Rice, it was suggested to introduce a class of milk-sugar triturations of certain powerful remedies. The name "Lactosum" was there suggested as a class (see page 38).—Ed. N. R.

gram of morphia sulphate be adopted as the hypothetical average adult dose of that salt, and a "lactose" be made of it, a decigram of which contains that quantity, the physician may give, as the case may require, five, or six, or seven, or ten, or twelve, or twenty or any other number of centigrams of the lactose so prepared. The advantage to be gained is, that every physician may readily prescribe the average dose of any preparation which he is not in the habit of using often. Very little reflection will lead to the conclusion that it would be a great boon to country practitioners, army medical officers in the field, and others who are frequently called upon to dispense and administer medicines extemporaneously without scales and weights, graduated measures, or any other guide, to have a set of preparations, scientifically prepared, the adult doses of which are alike and large enough to enable them to learn in a short time to estimate their bulk with tolerable accuracy, and even with perfect safety and consequent comfort to themselves. The *lactosa* could be made to include morphia, strychnia, opium, camphor, podophyllin, all the narcotic extracts, etc., etc., and yet the same quantity might represent the dose of each and every one of these lactoses. One would then soon become expert in guessing pretty accurately at the bulk representing the right quantity to use, when compelled to guess, dealing always with about the same standard bulk, for the varying specific gravity of the active substances would not materially affect it.

The making of such preparations would in a great degree remove the temptation to use coated pills, granules, capsules, etc., which are popular only on account of being adjusted to a fixed convenient posological strength, so as to be readily prescribed and dispensed.

The adoption of this plan would further carry with it substantial advantages to the pharmacist. It is known that in making fluid extracts of the strength prescribed by the Pharmacopœia, the process there laid down being strictly carried out with ordinary skill, the drug is frequently not exhausted unless more menstruum is used than can afterwards be gotten rid of, except with difficulty and always with an objectionable exposure to heat. But while our fluid extracts are too concentrated, some of the tinctures of the Pharmacopœia are too weak, containing so much alcohol in proportion to the drug as to be less valuable therapeutically than they would otherwise be. These defects would be easily avoided in making posological preparations, which would be intermediate in proportional strength. Again, in drying and powdering the solid extracts, the addition of milk-sugar in sufficient quantity would obviate the necessity for applying heat so high and so long continued as to injure their medical properties, and to make posological lactoses of the solid extracts would accordingly enable us to have the extracts in the convenient form of powder with much less danger. These preparations—or rather this system—would carry with it many other advantages which can be readily understood, and which it is not necessary here to enlarge upon.

With reference to nomenclature, the posological preparations should have names entirely different from those applied to our present preparations in order to make the system perfect.*

For preparations made by percolation with an alcoholic menstruum, the term *percolate* (*percolatura* in Latin) would be good. Tinctures of fresh herbs may be called *macerates*. Other names can be selected or invented as may be required.

Finally, prefixes similar to those used in the metric system of weights and measures should be used in connection with the several names given these preparations to indicate the quantity which represents the average adult dose in each case. The prefixes *vinti-*, *deci-*, *demi-*, *mono-*, *bi-*, *tri-*, *penta-*, and *deka-*, to designate, respectfully, 0.05, 0.10, 0.50, 1, 2, 3, 5, and 10 times the unit of weight or measures (the gram or the cubic centimetre), might be brought into requisition, or any other prefixes which are suitable and intelligible. It is believed, however, that only five or six of these should be used to any considerable extent, *i. e.*, that the preparations need be of only five or six groups as to their doses by weight or measure. I have had this subject under consideration during the past year or two, have carefully examined into it and am convinced that it is entirely practicable to bring the whole range of organic materia medica under this rule, and besides a considerable portion of the chemicals.

A *deci-lactose* would be a lactose the average dose of which is a decigram, or of which a decigram contains an average dose of the active constituent; a *mono-percolate* would be a percolate of which the average dose is a cubic centimetre; a *penta* preparation one of which the dose is five grams, or five cubic centimetres, etc.

The percentage strength of each such preparation, together with the exact quantity of active constituent represented by the average dose of the preparation, should be plainly stated on the label.

A similar nomenclature could, of course, be invented for posological preparations made with reference to the doses as expressed in terms of the apothecaries' or any other system of weights and measures, the prefixes to be entirely different for each system. But it is obvious that the metric system only is *perfectly* adapted to this class of preparations, and that to use the prefixes referred to above in reference to any other system would be impracticable, and to use any one prefix in connection with more than one system of weights and measures would be a fatal blunder.

The writer, in conclusion, ventures to express the belief that there is a need for such preparations as are herein described, that before long they will be a necessity, and that they will be largely used, although the pharmaceutical preparations now in use will continue to be necessary also.

WASHINGTON, D. C.

* The "lactoses," if introduced in the Pharmacopœia, will be entirely *new* preparations, and they should in the writer's opinion be made on the plan above set forth.

WEIGHT VERSUS MEASURE.

BY R. ROTHER.

There are many fine features in the German Pharmacopœia and other such codes, which, in the construction of a new pharmacopœia, could be copied with advantage. But they also contain numerous very decided characteristics which an advancing profession would not fail to reject. Of late years, it has become fashionable in this country to make very radical alterations in the Pharmacopœia. Yet such deep-going revolutions are not conducive to real progress. The natural course or evolution is the only true method of improvement, embodying as it does the sound practice of changing the whole by the almost imperceptibly gradual alteration of the parts. Such a mode of revision recognizes the needs of the hour and the legitimacy of the antecedents. But abrupt and arbitrary interference leads to the inevitable inference that either the old practice or the innovation are entirely wrong. A reaction from one extreme invariably tends to the opposite, and a proper middle course is only attained after a more or less extensive series of revulsions back and forth. The more violent the impulse, the greater will be the aberrant effect, and correspondingly longer will be the period of reaching a more stable equilibrium or mean result. The sudden change from maceration to almost exclusive percolation from coarse powders to fine powders, and then again to coarse powders; from little alcohol to mostly alcohol; from no glycerin to much glycerin are a few cases in point. But now another, or rather several new features are making their appearance. It is wise to profit by the experience of others, but the contrary to adopt their follies also. Wisdom is really the science of discrimination, and consists in discerning the differences and selecting the useful. By adopting others' practices, differing from our own, but regardless of their utility, commends us to no preference, and induces no advance. But the rational selection of the good and the judicious rejection of the bad or indifferent, is a sign of progress and concomitant enlightenment.

It is firstly proposed to compound everything by weight. Now, at first view, such a proposition made to one not deeply versed in pharmacal routine would seem very desirable, since it embodies a plausible uniformity. To compound certain liquids by weight is a recognized advantage, as, for instance, those of a viscid nature, but especially acids when compounded with a view to dilution and reference to their basicity, as the writer long since pointed out. Now there are three insuperable objections to the indiscriminate use of weight in the apportionment of liquids.

Firstly, the uncertainty of the resulting volume is of almost vital importance, as the uniform use of weight at once destroys the relativity of standards, since liquids of all kinds are consumed by measure. The utter confusion and hopeless intricacy which would thereby result to posology by this multitude of discrepant proportions, would not be altered one whit by the introduction of numerous and laborious tables, but would, on the contrary, help to render the confusion worse confounded.

Secondly, the unrestricted method of weighing all liquids would entail an enormous waste of time, but especially labor, the saving and utilization of which are considerations of prime importance, more especially in a retail pharmacy, where, during busy occasions, promptness and despatch would be seriously hampered by so unbusiness-like a regulation. But particularly in the compounding of prescriptions would the onus bear most heavily. None but those who have conscientiously worked by this method are qualified to pronounce on its possibilities. The continual running to and fro with bottles to weigh out some of the contents, the constant shifting of weights in taring the vessels and making the successive weighings, the serious damage, and consequent impairment of accuracy, done to the balances of all kinds by the ceaseless overloading with weights, the necessity of more apparatus and the loss of material adhering to it, but, above all, the risk of fatal error so easily incurred by the complications of a routine which above most things should be so simple and direct as to insure the greatest certainty, these are some of the disadvantages in the threatened system in the important work of dispensing.

Thirdly, in the operations of the shop laboratory, the drawbacks would be numerous. The constant and confusing record of making tares of vessels, etc., would be a result of the system, whose inherent weakness would again manifest itself in a multitude of ways, as, for instance, the errors of calculation, of the misplacement of weights, and interchanging of the vessels. Then the frequent weighing of portions of percolates, filtrates, and fragmentary products of numerous complex operations would be the fertile source of various other fallacies and failures. These operations would require a more varied and plentiful supply of apparatus, entailing breakage and general waste.

All of these superfluous procedures, therefore, involve not only the application of new and superior facilities, but also the great loss of time, patience, labor, and material, and, worst of all, incur the great risk of serious and perhaps irreparable errors.

It is further ordained to designate all quantities by parts, and construct, as far as possible, the formulas on the decimal scale as a preliminary to the metric system of weights—measures, of course, excluded. Only those who have operated in both systems can appreciate the admirable and convenient plan of the octaval system, and its frequent culmination in larger and distinct units susceptible of the great simplicity derived from the property of unlimited bisection, which is partially adopted in the present Pharmacopœia. The supposed advantage of designating quanties by parts is all imaginary. Such formulas are always cumbrous and unmanageable, as in most cases the numbers indicating the proportions are excessively large, in which the ratios are difficultly detached, and too unwieldy for the memory to carry.

The presumed simplicity of the decimal scale, and consequently of the metric system, is an illusion. It admits of but one bisection, and then a complexity begins, from which only a specially endowed mathematical mind can again extricate itself with any degree of certainty. The only advantage which the metric system has over ours is its uniformity and the direct connection between volume and weight through the medium of water.

For pharmacal and therapeutical uses, a decimal system has no superiority whatever. It is in fact signally inferior. Important relations that are only distinguished by so flimsy a reference as the decimal point or numeral place, are thus most ineffectively indicated. It is serious enough to have so close a resemblance between the drachm and ounce symbols, but it is especially unfortunate to rest all distinctions of quantity upon the relative positions of a mere dot.

RECENT PAPERS.

The Action of Chlorates on Iodides.—(R. H. PARKER.) The author having seen potassium chlorate prescribed in combination with syrup of iodide of iron, and having noticed a remarkable change and evident decomposition of the mixture, has studied the reactions occurring in the mixture.

When a solution of potassium chlorate is mixed with syrup of iodide of iron, a nearly colorless solution is obtained, which, on standing a few hours, acquires a reddish-brown color and an evident odor of iodine. This change is followed by the subsidence of a red precipitate and deeper color of the supernatant liquid; in a few days the solution becomes supersaturated with iodine, and crystals of the latter element are deposited. Sodium chlorate produces a similar decomposition. The author concludes that the products of the reaction are: ferric oxide containing only one molecule of water, iodine and potassium chloride, thus:

$$2FeI_2 + KClO_3 + H_2O = Fe_2O_3.H_2O + 2I_2 + KCl.$$

—*Pharm. Journ.*, April 24th.

Compound Solution of Hypophosphites.—DR. FREDERICK CHURCHILL, surgeon to the Victoria Hospital for Children, gives in the *British Medical Journal*, March 27th, reasons for preferring a compound solution of the hypophosphites to a mere suspension of phosphate salts in syrup, such as he states the ordinary "chemical food" to be. With the assistance of Mr. I. L. MacMillan, pharmacist to the Victoria Hospital, he has devised a formula for a compound liquor which he has found by experience to be a valuable tonic for children, and by the aid of which phosphorus, iron, magnesium, and other constituents of the blood and bones can be readily assimilated. The formula is as follows.

	grs. in 100 min.
Ferrous hypophosphite	2.77
Calcium hypophosphite	3.5
Sodium hypophosphite	3.5
Magnesium hypophosphite	1.99
Hypophosphorous acid	1.66
Water	86.58
	100.00

One fluid drachm is equal to (6.7 grs. of the mixed salts.)

Ferrous hypophosphite	1.6
Calcium hypophosphite	2.
Sodium hypophosphite	2.
Magnesium hypophosphite	1.1

One part of the liquor may be mixed with three parts of raisin or Carlowitz wine, and ½ oz. doses of the mixture given to children about 10 years of age. Raisin wine is preferable for children, Carlowitz for adults. Wines stronger in alcohol must not be used, or the hypophosphites will not remain in solution.—*Chem. and Drugg.*, April.

Treatment of Catarrh.—DR. HERMANN HAGER states that, being extremely subject to bronchial and pulmonary catarrh, in the spring and fall of the year, owing to sudden changes of weather, he has in the course of time, after trying various remedies, come to the conclusion that *quinine*, or another cinchona alkaloid, either had the power of entirely preventing the attack, or at least greatly to shorten it. He now prefers to take the remedy in pills, and he gives the following formula:

Pilulæ antiphlogisticæ, Hager.

(Hager's Catarrh-Pills).

℞ Quinidia sulphate.....	...5.0 gm.	=	75 grs.
Cinchonidia sulph.....	5.0 "	=	75 "
Tragacanth, pd.....	7.0 "	=	108 "
Althæa root, pd.....	3.0 "	=	45 "
Gentian root, pd.....	3.0 "	=	45 "
Red Saunders.....	1.0 "	=	15 "
Glycerin.....	7.5 "	=	115 "
Hydrochloric acid.....	7.5 "	=	115 "

Make 200 pills. Each should contain 0.05 gm. (= $\frac{3}{4}$ grain) of alkaloid.

On feeling the least discomfort, particularly after exposure, about 5 pills should be taken, and, if no relief is felt after an hour, 5 or 6 more. In more severe attacks the doses of 5 pills each may be repeated every half-hour until relief is felt. If the attack supervenes at night, the repetition of a few doses generally insures a quiet night, undisturbed by cough.—From *Pharm. Centralh.*, No. 1.

Saffron-Culture in Spain.—Saffron is cultivated in several parts of Southern Austria, in Italy, France, Greece, and particularly in Spain. The Spanish word azafran, which is derived from the Arabic, is the source of the Spanish term *azafranal*, that is a complex of fields, belonging to some village, upon which saffron is cultivated. Saffron requires a light, fresh and rather dry soil; prefers cool plains, and ceases to be productive after 4 years, when it becomes necessary to abandon the field and to select a new one which has either lain fallow for years, or has been only covered by wild grasses and weeds. Up to within recent times, the cultivation of saffron was only carried on by small tradesmen, such as masons, tailors, shoemakers, who did not plant more than 20–40 Spanish bushels (fanegas) of bulbs. But, of late years, small farmers have begun to participate in the cultivation, who did not, however, dare to plant more than 80 to 100 fanegas, because, at the time of gathering the flower, and collecting the stigmata, it is important to perform the whole labor within 48 hours, at latest, and it is impossible to obtain hands enough to do a larger amount of work in so short a time.

One celemin (that is $\frac{1}{12}$ of a fanega) of ground, yields about 10 times the quantity of bulbs sown, which are much higher in price during May than during September. The scaly leaves of the bulbs are used by the country-people mostly as stuffing for mattresses. One celemin of ground yields about 5 lbs. of crude saffron, which, after roasting, diminishes to 1 lb., and is worth $4.24 to $4.50. During November the prices are generally somewhat lower. A skilled *rosera*—this is the appellation of a woman engaged in collecting saffron—cannot collect, even if working deep into the night, a whole pound of "roasted" saffron; for a pound of the "rosas," the product of at least 100,000 flowers, only yields 1 ounce of green saffron, and it requires 5 of these to make one ounce of "azafran tostado." The refuse matter is used as fodder for cattle, goats and sheep, in whom it is said to produce a most abundant secretion of milk.

Saffron is cultivated in Spain only in the provinces of Teruel, Cuenca, Ciudad Real, Toledo, Albacete, and Valencia. The domestic consumption amounts to about 40,000 pounds. During favorable years the total yield of 3,000 villages where saffron is cultivated amounts to about 200,000 lbs.; but during 1876 the harvest was only 80–90,000 lbs. About one-half of the product is exported, a good deal of it going to the Philippine Islands and even to China.

There are three kinds of saffron known in Spanish trade, namely *prima* or *escogida superior* from Cuenca and Albacete; *secunda* or *media* from Aragon and Teruel; and *tertia* (*baja—manzanares*) from Ciudad Real and Toledo. The city of Valencia is the chief emporium of the saffron-trade.—*Pharm. Handelsblatt.*

Iodometric Method with Unalterable Volumetric Solutions.—(G. ALLARY.) This process is based on the following reactions:

1. Replacement of iodine by *bromine*—not free bromine, but a solution of sodium or potassium bromide and bromate in presence of an acid (hydrochloric acid). The reactions take place as follows:

a. $5KBr + KBrO_3 + 6HCl = 6KCl + 3H_2O + 3Br_2$

b. $6KI + 3Br_2 = 6KBr + 3I_2$

2. Conversion of the separated iodine into iodide of bromine, by means of the same solution of bromide and bromate.

The whole reaction is made to take place in presence of a solution of starch, which indicates by its change of color the different phases of the operation.

Preparation of the Volumetric Solutions:

1. *Sodium or Potassium Bromide and Bromate.* Caustic soda solution is mixed with bromine in slight excess, and the whole evaporated to dryness. 2 gm. of the dry salt are dissolved in distilled water to 1 litre.

2. *Potassium Iodide.* 1.308 gm. of this salt are dissolved in water to 1 litre. The solution contains 0.001 gm. of iodine in 1 cc.

3. *Hydrochloric Acid*, perfectly pure.

4. *Solution of Starch*, filtered clear and saturated with common salt to keep it from spoiling.

Standardizing the Bromide Solution.

Into a beaker or test-tube pour 10 cc. of the iodide solution, corresponding to 0.010 gm. of iodine, add a little starch solution, and afterwards an excess of hydrochloric acid. From a burette, divided into $\frac{1}{10}$ cc. the bromide solution is now carefully added to the liquid which has assumed a blue color, until the latter has passed through red, red-brown, and cinnamon-brown to a pale-yellow. As soon as this occurs, the 0.010 gm. of iodine are converted into iodide of bromine. Supposing 200 units [1 unit means here $\frac{1}{10}$ cc.] of the bromide solution had been used to accomplish this, then 20 units correspond to 1 milligram of iodine. And the figure 20 is then the volumetric equivalent of the iodide solution.

Example of Application.

It is required to determine the iodine in a varec-ash. This contains generally carbonates, sulphides, sulphites, subsulphites, chlorides, bromides, cyanides, etc., and the amount of iodine varies from $\frac{1}{1000}$ to $\frac{8}{1000}$.

Weigh 2 gm. of it, add an equal weight of soda-lime, triturate both well together, and heat the whole in a platinum crucible to a low red heat. This effects mainly a destruction of the cyanides, and helps to alter the sulphur compounds. On cooling, the mass is washed with water, until a sample of the wash-water, after being saturated with nitric acid, is no longer affected by silver nitrate. The liquid is then concentrated to a small volume, supersaturated with hydrochloric acid, and titrated with the bromide solution, as detailed above.—*Zeitsch. d. Oest. Apoth. Ver.* fr. *Bull. d. l. Soc. Chim.*

Cement for Paper.—(FR. DAUN.) Dissolve 180 gm. of best French glue in 180 gm. of water by soaking and heating. Then add a solution of 1 gm. of shellac in 6 gm. of alcohol and stir well as long as the solution is warm.

Mix also 35 gm. of dextrin in 50 gm. of alcohol and 25 gm. of water, stir it well in a beaker and place it into warm water until the solution is completed and has acquired a clear brown color. Mix this solution with that of the glue and pour the whole into a suitable form in which it may solidify. When wanted for use, cut off a small piece and liquefy it by warming.—*Neueste Erfind. und Erfahr.*

Test of Commercial Sulphate of Quinia.—(G. KERNER.) Some time ago, Dr. Otto Hesse published a new method for the determination of the purity of sulphate of quinia (see NEW REM., 1879, 139), which he claims to be preferable to all others. G. Kerner, whose process had heretofore been considered the most exact and reliable, now insists that this is still the case; yes, that, by careful manipulation, it is even possible to obtain approximate estimations of the quantity of any accompanying traces of cinchonidia, etc.

Regarding the percentage of water, Kerner considers the normal quinia sulphate to contain 7 molecules of water, or 14.45%, while Hesse assumes 8 molecules. Hence the officinal sulphate should, according to Kerner, lose at 115° C. at most only 14.6% of moisture. But since it is known that this salt easily loses a portion of its water, Kerner proposes to recognize as officinal only that sulphate which corresponds to the formula $2C_{20}C_{24}N_2O_2.H_2SO_4 + H_2O$, which is more stable, and is formed from the former by longer exposure to dry air. This salt is specifically heavier and loses its water only when heated to 100–115° C. It contains only 4.6% of water; hence the Pharmacopœia might allow 5 per cent.—*Arch. d. Pharm.* 13, 186, and *Chem. Zeit.*

Arseniate of Sodium.—(J. LEFORT.) Dry arseniate of sodium has the composition Na_2HAsO_4; in crystals it contains 12 molecules of water, equal to 53.73 per cent of its weight. According to some chemists, this salt also crystallizes with 7 molecules of water, or 40.39 per cent. If the temperature of a solution of the salt is kept at 30° C., crystals are deposited which contain 4 molecules of water. The author has examined 10 different samples of the salt, obtained from as many different sources, and found their water of crystallization to vary from 44.65 to 57.45 per cent.—*Journal de Pharm. et Chim.*, 1880, 487.

Cleansing of Stills and Condensers.—(P. CARLES.) The author recommends, as the very best method, to deprive stills and condensers of the adhering resinous, oily, waxy, or tarry deposits and of the accompanying odor left there by the last distillation, to use carbonate of ammonium. Supposing a still has been used for the preparation of an aromatic water. Scouring with acids or alkalies, sand, sawdust, etc., and the passage of steam, will make it apparently quite clean; but if a piece of carbonate of ammonium is placed in the entrance of such a condenser, and steam passed, a surprising quantity of impurities will still be eliminated.—*Répert. de Pharm.*, 211.

Useful Tables.—

For converting litres into fluid ounces.

Litres.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0	33.8	67.6	101.4	135.3	169.1	202.9	236.7	270.5	304.3
10	338.1	372.0	405.8	439.6	473.4	507.2	541.0	574.8	608.6	642.5
20	676.3	710.1	743.9	777.7	811.5	845.3	879.2	913.0	946.8	980.6
30	1014.4	1048.2	1082.0	1115.9	1149.7	1183.5	1217.3	1251.1	1284.9	1318.7
40	1352.6	1386.4	1420.2	1454.0	1487.8	1521.6	1555.4	1589.2	1623.1	1656.9
50	1690.7	1724.5	1758.3	1792.1	1825.9	1859.8	1893.6	1927.4	1961.2	1995.0
60	2028.8	2062.6	2096.5	2130.3	2164.1	2197.9	2231.7	2265.5	2299.3	2333.2
70	2367.0	2400.8	2434.6	2468.4	2502.2	2536.0	2569.8	2603.7	2637.5	2671.3
80	2705.1	2738.9	2772.7	2806.5	2840.4	2874.2	2908.0	2941.8	2975.6	3009.4
90	3043.2	3077.1	3110.9	3144.7	3178.5	3212.3	3246.1	3279.9	3313.8	3347.6

For converting fluid ounces into centilitres.

Fluid ounces.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
0	0	2.96	5.91	8.87	11.83	14.79	17.74	20.70	23.66	26.62
10	29.57	32.53	35.49	38.45	41.40	44.36	47.32	50.28	53.23	56.19
20	59.15	62.10	65.06	68.02	70.98	73.93	76.89	79.85	82.81	85.76
30	88.72	91.68	94.64	97.59	100.55	103.51	106.47	109.42	112.38	115.34
40	118.29	121.25	124.21	127.17	130.12	133.08	136.04	139.00	141.95	144.91
50	147.87	150.83	153.78	156.74	159.70	162.66	165.61	168.57	171.53	174.48
60	177.44	180.40	183.36	186.31	189.27	192.23	195.19	198.14	201.10	204.06
70	207.02	209.97	212.93	215.89	218.85	221.80	224.76	227.72	230.67	233.63
80	236.59	239.55	242.50	245.46	248.42	251.38	254.33	257.29	260.25	263.21
90	266.16	269.12	272.08	275.04	277.99	280.95	283.91	286.86	289.82	292.78

Vehicle for Castor Oil.—Bidone Carlo, pharmacist in Castelnuovo (on the Scrivia, Italy), recommends the following as an excellent vehicle for castor oil:

Rhubarb, sliced	20 parts.
Alcohol, 45 per cent	20 "
Cloves, ground	8 "
Saffron	8 "
Nutmeg	20 "
Good common wine (white wine or sherry)	200 "
Ether	10 "

Mix the drugs, put them into a glass vessel, pour on the alcohol and wine, and allow them to macerate for 8 days in a warm place, frequently agitating. Then filter, add the ether, and preserve the product in a well-closed vessel.

The addition of 1 part of this Elixir of Rhubarb to 3 parts of castor oil, causes the latter rapidly to lose its bad taste and smell, so that it may be readily administered to adults as well as to children.—*Bolletino Farmac.* (Milano), 1880, 184.

Test for the Presence of Water in Alcohol or Ether.—(C. MANN.) If a solution of 2 parts of citric and 1 part of molybdic acid is evaporated until the residue begins to fuse, and the latter be now dissolved in 30 or 40 parts of water with the aid of a gentle heat, the resulting solution, which is almost colorless, has the property of leaving behind, on drying, a dark-blue residue. On dipping white filtering paper into the solution and drying it at 100° C. (= 212° F.), a blue test-paper is obtained, which remains unaltered if dipped into anhydrous ether or alcohol; but, if either of them contain water the paper loses its color, particularly on warming.—*Chemiker-Zeitung.*

Purification of Mineral Oils.—(C. A. RIEBECK.) Mineral oils may be deprived of phenol and disagreeable odor by washing them with a solution of chloride of lime in alcohol and caustic soda. According to the quality of the oil, 5 to 9 parts of this solution are used for every 100 parts of oil.—*Dingler's Polyt. Journ.*

Fragrant Preservative of Ointments. — (A. PRIKRYL.) The author recommends the following mixture as an addition, in very small quantities, to cerates and ointments, for the purpose of preventing their getting rancid :

Oil of bergamot	15 gm.
" cinnamon	10 "
" lemon	10 "
" cloves	10 "
" lavender	5 "
" neroli	20 gtt.
" geranium	60 "
" palma-rosa	120 "
Strawberry essence (see May No., p. 146).	100 "
Acetic ether	100 "
Nitric ether	100 "
Tinct. benzoin	50 gm.

—*Rundschau*, 1880, No. 7, and *Pharm. Centralh.*

Preparation of Crystalloid Tannin.—As is well known, tannin does not assume a crystalline form. Yet the Chemical Factory of E. Schering, at Berlin, has succeeded in producing a tannin which has a very deceptive crystalline appearance. This is prepared as follows: An aqueous, alcoholic, or ethereal solution of tannin is evaporated in a copper boiler or in vacuo, until the residue on cooling may be broken without being adhesive. This residue is then transferred to a double-walled boiler made of copper, tin, or zinc, heated by steam, and the bottom of which is perforated by minute holes, through which the tannin, when melted, runs. Each drop as it issues has to fall for a distance of about 5 metres (= 16.3 feet), and is spun out during its fall to a long fine thread, the surrounding atmosphere being kept warm. All these threads fall upon a rapidly revolving cylinder of wood or metal, from which the finished product is taken in more or less long threads.—*Neueste Erfind. und Erfahr.*

Characteristics of the Four Principal Alkaloids of Cinchona Bark.—The following scheme, by G. KERNER, is a very perspicuous arrangement of the corresponding properties of Quinia, Quinidia, Cinchonia, and Cinchonidia.

Turn the plane of polarized light to the *left*. Their *monotartrates* are difficultly soluble in water.

Isomeric Alkaloids of the Composition: $C_{20}H_{24}N_2O_2 + xH_2O$.

Their solutions in oxygen-acids have a *blue fluorescence;* with chlorine and ammonia, these solutions produce a *green color* (thalleioquine). The pure alkaloids form crystalline *hydrates*, which are *efflorescent.*

Quinia.
Easily soluble in ether. Most of its salts are more difficultly soluble than the corresp. salts of the other Cinchona alkaloids. Forms characteristic *iodosulphate* (or herapathite) which is difficultly soluble in alcohol.

Quinidia.
Difficultly soluble in ether. Forms a crystalline *hydriodate*, which is soluble with great difficulty in water and alcohol.

Cinchonidia.
Very little soluble in ether. Its *hydrochlorate* forms coarse large and limpid crystals. Exists in two modifications differing by the form of their sulphates.

Cinchonia.
Least soluble in ether, among these four alkaloids. Is *not precipitated by* KI from moderately dilute neutral solutions. The hydriodate is easily soluble in alcohol.

Isomeric Alkaloids of the Composition: $C_{20}H_{24}N_2O$.

Their acid solutions are *not fluorescent*, and give *no green* color with chlorine water and ammonia. The pure alkaloids crystallize *anhydrous*, and hence do *not* effloresce.

Turn the plane of polarized light to the *right*. Their *monotartrates* are relatively easily soluble in water.

Palembang Benzoin.—(E. SAALFELD.) For some time back a new kind of gum benzoin, surnamed "Palembang," has appeared on the market. It comes from Sumatra, is entirely devoid of cinnamic acid, and costs about 44 cents a pound. It may be used with advantage for the manufacture of benzoic acid, of which it contains 10%. The extracted acid has a faint odor of benzoin and is brilliantly white. The commercial benzoic acid, "sublimed from the gum," is supplied by English factories, and appears to be prepared by the *wet* process from Palembang benzoin. Alcohol dissolves as much of this as it does of Siam benzoin; but the tincture prepared from the former is lighter, of fainter odor, and, when dropped into water, produces no white milkiness, only a flocculent precipitate. Hence it should not be used in making tincture of benzoin.—*Archiv d. Pharm.*, XIII. (1880), 280.

Aspidospermine.—(G. FRAUDE.) Quebracho bark, from *Aspidosperma Quebracho* Schlecht. (see April number, p. 111), contains an alkaloid, which is very little soluble in water, but soluble in alcohol and ether, and crystallizing in small prisms. Its sulphate and hydrochlorate are very soluble, and their solutions are very bitter. The composition of the alkaloid is $C_{22}H_{28}$ (or H_{30} ?) N_2O_2.—*Ber. d. Deutsch. Chem. Ges.*

False Sumbul Root.—According to Prof. W. DYMOCK, the root of *Dorema Ammoniacum* is a very common article of commerce in India. It much resembles sumbul root, but has an odor of ammoniacum. This is overcome by flavoring it with musk. The tincture of this spurious sumbul root is much darker than that of the genuine.—*Pharm. Journ.*

Bâlsam of Tolu and Creasote in Phthisis.—French practitioners have lately revived an old method of treating phthisis, namely, by the internal administration of creasote; but the results are said to be hardly different from what they were formerly. This method of treatment has, however, been improved upon by Dr. Reuss, who has found that a combination of balsam of Tolu with creasote yielded surprisingly good effects. Relief of dyspnœa or oppression of the chest took place already in about 8 days, while a longer time was required to diminish expectoration, cough, night-sweat and fever, or to increase the bodily weight. Dr. Reuss uses troches containing

Balsam of Tolu	0.20 gm. = 3 grains,
Creasote	0.05 " = ¾ grain,

and directs at first 2 to be taken night and mornings, which are gradually to be increased to 10 troches per day. —*Journ. de Thérap.*

Platinum attacked by Fusing Alkaline Carbonates.—DR. KONINK has found that, contrary to the previously entertained belief, fusing alkaline carbonates decidedly attack platinum vessels, particularly when heated to a high heat. The loss of a crucible amounted at one time to as much as 3.8 milligrams, and the platinum was recovered from the melted mass.—*Zeitsch. f. anal. Chem.* and *Ph. Zeit. f. Russl.*

The Volatilizing Point of Metallic Arsenic.—EWING G. M. CONECHY has found that pure metallic arsenic volatilizes at a temperature of 449°–450° C. (ab. 840°F.), and not, as stated in text-books, either at 180 C.°, or, as others have it, at a dull red heat.—*Chem. News*, 1880, April 23d.

Syrup of Pine-Buds.—In Europe pine-buds are used in form of infusion or tincture, as an efficient diuretic and so-called "blood-purifier;" also by way of inhalation in affections of the lungs. MÜLLER proposes to use a syrup which contains all the active constituents and has an agreeable taste.

1. *Syrupus Turionum Pini Vinosus.*
Vinous Syrup of Pine-Buds.

Pine-buds.....50 parts.
White wine..... q. s.

Infuse the buds in sufficient hot white wine so that when the liquid is strained there will be obtained 600 parts of filtrate.

In this dissolve
Sugar.....900 parts.

2. *Syrupus Turionum Pini Aquosus.*
Aqueous Syrup of Pine-Buds.

Pine-buds.....80 parts.
Carbonate of potassium..... 5 "
Boiling water..... q. s.

Infuse the buds with the boiling water, add the carbonate of pot., let the whole stand for 12 hours, and strain. Then dissolve, with a gentle heat, in

The strained liquid.....600 parts.
Sugar.....900 "

—*Schweiz. Wochensch. f. Pharm.*

Balsam of Peru Containing Rosin.—In the North-German market there occurs a kind of balsam of Peru which is remarkable by its comparatively low price, its consistence, and the fact that it might be passed as pure, as it stands the sulphuric acid test of the German Pharm. Dr. C. Grote, of Braunschweig, was, however, led to suspect its purity, and to suppose that rosin had been used in its manipulation. He ascertained that an addition of rosin to genuine balsam reduced its specific gravity, while at the same time it rendered it of a thicker consistence. Any balsam which has a spec. grav. below 1.136 and is thicker than usual may be suspected of containing resin. This impurity may also be detected by ammonia as follows:

Mix 3 to 5 drops of the balsam with 2 to 3 cubic centimetres of water of ammonia in a test tube and shake well. If the balsam is pure, the shaking produces a thin, soon-collapsing foam, and a brownish-gray liquid, resembling an emulsion, which remains thin-liquid even after standing for days. If resin is present, a dense foam is formed, which lasts for several hours and has considerable bulk, according to the quantity of impurity present. The mixture is gray, appears like a perfect emulsion, and gradually gelatinizes, so that, if 20–25% of resin were present, the test-tube may be inverted after fifteen minutes without spilling anything. In presence of smaller quantities the consistence is a little less solid.—From *Pharm. Centralh.*, No. 22.

Nitrogen, Chlorine, and Sulphur: Their Rapid and Easy Detection in Organic Compounds.—(P. SPICA.) The substance to be examined is heated with sodium in a test-tube, and the product dissolved in water, as in the ordinary way of testing for nitrogen by Lassaigne's process; the solution will then contain the nitrogen in the state of cyanide, the sulphur as sulphide, and the chlorine, bromide, or iodine as chloride, bromide, or iodide if these elements be present. A drop of the alkaline liquid placed on a clean silver surface will at once produce a black stain if a sulphide has been formed, whilst the cyanogen may be detected by the Prussian blue test in a portion of the liquid. If neither of these is present, the halogen may be at once tested for in another portion of the solution by adding nitric acid and silver nitrate, but if a sulphide or cyanide is present it must be first destroyed by mixing the solution with about half its bulk of pure sulphuric acid and heating for a short time before adding the silver nitrate. — *Gazetta Chim. Ital.* and *Journ. Chem. Soc.*

Regeneration of the Mother-Waters of Tartaric Acid.—FRANZ DIETRICH, of Munich, has patented a process by which the residuary tartaric acid left in the mother-waters after crystallization can be recovered. Heretofore this has generally been a complete loss, although the quantity amounted to 400 to 500 gm. per litre. His process is the following: The mother-liquid is diluted to 20–25° B., about $\frac{2}{10}$ of the free sulphuric acid contained in it is neutralized with lime or chalk, and the filtered solution poured, under constant stirring, in a solution of potassium tartrate of 15–20° B. This causes a precipitation of potassium bitartrate, containing 90–99% of pure salt. The supernatant liquid contains potassium tartrate which is used over again in the next operation. The cream of tartar obtained need only be washed with water and may then be decomposed, as usual, with chalk or lime.—*Chemiker-Zeitung*, No. 21

The Chlorochromic Acid Test for Chlorine.—The red-brown colored acid obtained by distilling a mixture of potassium dichromate, sodium (or any other) chloride and sulphuric acid, is by no means new as a test for chlorine, but heretofore the operation has generally been conducted in a retort, and took some time. W. RILEY has modified the process, so that it is very simple. The well-mixed and finely powdered mixture of potassium dichromate (1 part), a chloride or the substance suspected to be or containing a chloride (1 part), is introduced into the bottom of a beaker-glass, some sulphuric acid (3 parts, or less) is added, and a slightly smaller beaker-glass suspended inside the other at a distance of about 2 to 3 cm. (¾ to 1¼ inch.) from the mixture. A little ice, or ice and salt having been placed into the smaller beaker, a gentle heat is applied to the outer, when chlorochromic acid will be given off, if any chloride was present, and will condense on the bottom of the smaller beaker-glass. In place of the latter a watch-glass may be taken. The drops adhering to either the beaker or watch-glass are mixed with a drop of ammonia, then with acetic acid in excess and finally with a solution of acetate of lead, which latter produces a distinctly perceptible precipitate of chromate of lead, even if the quantity of chlorochromic acid present has been so small that it could not be recognized by its change of color on coming in contact with the ammonia. Presence of iodine is apt to interfere with this reaction.—*Chem. News.*

Drugs in Epilepsy, especially Nitroglycerin.—DR. MURRAY LINDSAY gives the following resumé of the results of his trials of several drugs in a number of cases of chronic epilepsy in the Derby County (England) Lunatic Asylum. *Bromide of potassium* was the remedy from which most benefit was derived in cases of chronic epilepsy, it being the most certain to diminish the frequency of the fits. Next to this he classes *nitrite of amyl* and *nitroglycerin*. The latter remedy served, in some cases, to increase the fits, while in others—those in which there was marked anæmia—it diminished both the frequency and severity of the attacks. It was administered in doses of from 1 to 10 minims of a 1%-solution, and was pushed, in some cases, until its physiological effects were manifest, *e. g.*, quickening of the pulse and throbbing of the arteries. Even when taken continuously for three months it had no ill-effects upon the general health. Nitrite of amyl appeared to be most useful when bromide of potassium failed to act. Sumbul, arsenic, and zinc gave no appreciable results.—*Br. Med. Jour.*

Jaborandi in Mumps.—The *Med. and Surg. Reporter*, quoting from *Il Morgagni*, states that a Dr. Testa has used jaborandi successfully as a remedy for mumps.

Ocimum basilicum, according to Dr. Lemos (*Medicinische Neuigkeiten*), is of value as an anthelmintic. 50 grams of its juice are taken at a dose, to be followed in two hours by a dose of castor oil. Its physiological action, so far as known, is to relax the bowels.

SOCIETY REPORTS

Pennsylvania Pharmaceutical Association.

The third annual meeting of this Association was held in Allentown on the 8th and 9th of June. The President, Charles A. Heinitsh, called the Association to order promptly at 3 o'clock P.M., June 8th, and the roll was called by the Secretary. Dr. E. G. Martin, Mayor of the city, was then introduced to the Association by I. A. Wiegner, of Allentown, and in a neat address, in which he referred especially to the value of united effort in aiding the progress of pharmacy, welcomed the Association to the city, and hoped that their visit might be a profitable and pleasant one. President Heinitsh briefly returned the thanks of the Association.

The President then read his annual address, which was afterwards referred to a Committee of three, Dr. Ross, Chairman, to consider and report upon the suggestions contained in it.

The credentials of Messrs. Randal Rickey, of Trenton, and A. G. Smith, Belvidere, delegates from the New Jersey State Pharmaceutical Association, were presented and read by the Secretary. The President welcomed them to a seat and a participation in the deliberations of the meeting.

The Secretary read his annual report. Three hundred copies of the proceedings published last year were distributed, and two hundred remain on hand.

Mr. Meyers read the report of the Executive Committee. The cost of publishing 500 copies of the proceedings amounted to $78.60. Sixty-five members were elected at the last annual meeting, all of whom have complied with the requirements of the Constitution, and are enrolled as active members. At a meeting of the Committee with the President, held in Harrisburg, October 16th, 1869, six (6) new members were admitted. At a second meeting held in the same place, April 23d, 1880, three (3) new members were elected. Present membership, 146. On motion, the report was received and ordered to be printed with the proceedings.

The Treasurer reported a balance in the treasury of $465.09. Accounts had been opened with 146 druggists in the State, and nearly all the members had promptly paid their dues. Seventy (70) members took out certificates of membership.

On motion of Mr. Landis, the Treasurer's accounts were referred to an Auditing Committee. The Chair appointed Messrs. Brush, Weaver, and Klump.

The President stated the next order of business to be the election of officers for the ensuing year, and announced the following Committee on Nominations: Messrs. Streckel, I. H. Boher, Chas. W. Hancock, Dr. Hayes, and D. Horn.

The report from the Committee on Legislation and Trade Interests was read, and, on motion, referred to the Committee on President's address.

The report of the Committee on Adulterations and Sophistications was read by the Chairman, and, on motion, was accepted, and the recommendations adopted.

Mr. Kennedy, Chairman of the Committee on Queries, reported sixteen queries to be answered at the next annual meeting. The report of the delegates to the American Pharmaceutical Association was read by Mr. Samuel Gerhard, of Philadelphia. The President appointed the following Committee to report upon the articles placed on exhibition in the room on the second story below: Messrs. Alonzo Robbins, J. W. Landis, and Wm. Turner. Mr. Kennedy offered the following resolution:

Resolved, That a Committee of five be appointed for the purpose of drafting a bill regulating the practice of pharmacy, sale of poisons, and preventing the adulteration of food, to be presented to the next legislature.

The Chair appointed the Committee as follows: Messrs. Geo. W. Kennedy, John M. Maisch, J. H. Boher, P. Zeizler, and Wm. Harris.

A communication from Messrs. Smith, Kline & Co., inviting the Association to participate in an excursion over the famous Switchback, was read by the Secretary. On motion of Mr. Landis, the invitation was accepted with the thanks of the Association. A telegram was read from Vice-President Kelly, expressing his regrets that urgent business engagements prevented him from attending the meeting.

A communication was read from the Trade Association of Philadelphia Druggists, requesting this Association to act in conjunction with their organization, to induce our representatives in Congress to use their influence in relieving the trade from the unjust tax and odium cast upon us as liquor dealers, which was referred to the Committee on Legislation.

At 5 o'clock P.M. the Association adjourned.

Second Session.— Wednesday Morning.

The Association was called to order by the President at 9 A.M. The minutes were read and approved. Clay W. Holmes, of Elmira, Secretary of the N. Y. State Pharmaceutical Association and a delegate from that body, presented his credentials which were read by the Secretary. The President invited him to a seat and to participate in the deliberations of the meeting.

The Committee appointed to consider the recommendations contained in the President's address reported as follows: 1st. The Secretary should be paid an annual salary of $50.00. 2d. Delegates should be elected to the next annual meeting of the New York and New Jersey State Pharmaceutical Associations. 3d. A committee should be appointed to draft a bill to regulate pharmacy, to be presented to the next legislature. 4th. A committee should be appointed to prepare a code of ethics for the Association. 5th. A committee should be appointed to prepare an article relating to apprentices to the drug business. 6th. The Association should indorse the action of the Western Druggists' Association in regard to the repeal of the stamp tax on proprietary medicines and perfumery. The above report was adopted, and on motion of Prof. Remington the salary of the Treasurer was also fixed at $50.00.

The Committee on Nominations reported the following list of officers:

George W. Kennedy, Pottsville, *President;* George A. Kelly, Pittsburgh, *1st Vice-President;* Alonzo Robbins, Philadelphia, *2d Vice-President;* J. A. Miller, Harrisburg, *Secretary;* Joseph L. Lemberger, Lebanon, *Treasurer;* James A. Meyers, Columbia; W. F. Horn, Carlisle; and J. H. Stein, Reading, *Executive Committee.*

A ballot was taken and the candidates were unanimously elected. The newly elected President and Vice-President were escorted to seats on the platform where they were received by the retiring President.

Prof. Remington, from the Committee on Certificate of Membership, reported that seventy certificates had been issued to members during the past year.

An invitation from the druggists of Allentown to a banquet at the Allen House was read and on motion accepted.

The following resolution was offered by Prof. Remington:

Whereas, The custom of providing entertainments of various kinds for the members of the Pharmaceutical Association is one which greatly impairs the usefulness of such Association by consuming valuable time, interfering with the regular business, and imposing upon the local committees such an amount of responsibility, trouble, and expense which dignified scientific bodies should refuse to exact, it is therefore

Resolved, That the Pennsylvania Pharmaceutical Association record their disapprobation of such entertainments and instruct the Association hereafter to decline to make arrangements for the purpose.

Mr. Turner read the report of the Committee on the Exhibition. Articles from eight different houses were placed there. The Committee regret that there was no

creditable exhibit of home-made chemicals or pharmaceutical preparations.

Mr. Cressler, Chairman of the Committee to select the time and place for holding the next meeting, reported in favor of Williamsport, and the time the second Tuesday in June, 1881. The report was adopted, and Mr. E. A. Cornell, of Williamsport, was elected Asst. Secretary. On motion of Prof. Remington, a committee of five were appointed to co-operate with a similar committee from the Philadelphia Trade Association.

Geo. W. Kennedy read a paper in answer to the query, "Is Phosphate of Soda adulterated with Carbonate and Sulphate of Soda?"

Prof. Remington read Louis Emanuel's paper in answer to the query, "What addition to Epsom Salts will diminish its bitter and nauseous taste without materially altering its properties?"

At 12 M. the Association adjourned.

Third Session.—Wednesday Afternoon.

The Association met at 2 P.M., to listen to the address of Prof. Remington, of Philadelphia, on the Metric System. At the close of the address, 3 P.M., the President called the Association to order. The minutes were read and approved. The President read the list of special committees appointed to report at the next annual meeting. An hour was occupied in a general interchange of views among the members regarding the merits and the best mode of manufacturing certain pharmaceutical preparations. The thanks of the Association were tendered to Prof. Remington for his valuable and instructive lecture. Prof. Remington offered the following resolutions which were unanimously adopted:

Resolved, That the thanks of the Pennsylvania Pharmaceutical Association be and are hereby tendered to Mr. C. C. Klump, our efficient Assistant Secretary, for his active and earnest labors in making this a successful meeting.

Resolved, That the thanks of the Pennsylvania Pharmaceutical Association be likewise extended to the press, to the druggists, and citizens of Allentown for their warm-hearted hospitalities extended during our visit to their city.

The following committees were announced:

Committee on Trade Interests—Dr. Geo. Ross, Wm. Harris, J. H. Boher, W. D. E. Hayes, W. L. Turner, Dr. Parry, John A. Weaver, John P. Thompson, J. W. Landis, Thos. Deibert.

Committee on Adulterations and Sophistications—Geo. A. Kelly, Alonzo Robbins, C. H. Cressler.

Committee on Papers and Queries—S. Campbell, W. F. Horn, James B. Cherry.

Committee on Ethics and Local and Private Formulas—Dr. Chas. T. George, Herman Rahman, Samuel Campbell, C. C. Hagenbuch.

Committee on Apprentices—P. M. Ziegler, Dr. Wm. H. Egle, Joseph P. Remington.

Delegates to the American Pharmaceutical Association—L. H. Harris, Jacob H. Stein, C. C. Klump, C. L. Lochman, J. A. Meyers.

Delegates to N. J. State Pharmaceutical Association—P. S. Brugh, and Robert Walch.

Delegates to New York State Pharmaceutical Association—Charles A. Heinitsh, V. E. Shaw.

The minutes of the afternoon session were approved and at 5.15 P.M., the Association adjourned to meet in Williamsport, the second Tuesday in June, 1881.

The following pharmaceutists were in attendance from Philadelphia—Robert K. Walch, Wm. L. Turner, D. Horn, Jr., Samuel Gerhard, A. Robbins, D. Phreaner, C. W. Hancock, Charles A. Weidman, J. P. Remington, Edward C. Jones, Samuel Campbell, W. M. Thompson, W. A. Ball, J. L. Patterson, S. Wolff, W. D. Thompson. From New York—D. Pringle, A. P. Hodge. Reading—J. W. Landis, J. H. Stine, John D. Raser, A. R. Durham, W. Weis, J. Morris Jones. Harrisburg—J. H. Boher, J. A. Miller, Charles L. George. Lancaster—H. B. Parry, C. A. Heinitsh, P. S. Brugh, J. W. Miles. Lebanon—George Ross, James M. Lemberger. George W. Kennedy, Pottsville—Lewis H. Bachman, Chicago—M. D. Mallon, Shenandoah—John A. Flemming and W. D. Hayes, Shippensburg—Charles H. Cressler, Chambersburg—H. Purcell, Bristol—John F. Patton, York—Randel Ricky, Trenton, N. J.—A. G. Smith, Belvidere, N.J.—John A. Weaver, Easton—V. E. Shaw, Eldred—W. F. Horn, Carlisle—Clay W. Holmes, Elmira—E. T. Meyers, Bethlehem—Edward Bahl, Hellertown—James J. Sheridan and S. D. Addis, South Bethlehem.

A Fine Exhibit.

In a front room over Aschbach & Co.'s store, there is a magnificent exhibit of pharmaceutical preparations and druggists' supplies in connection with the convention in Saenger Hall. Among the exhibitors we mention Mr. Theodore Ricksecker, an enterprising merchant, located at 146 and 148 William street, New York. Mr. Ricksecker's parents were originally from Bethlehem, being Moravians. They now reside at Canal, Dover, another well-known Moravian place. His exhibit of druggists' supplies is the finest ever seen here. His specialties are skin soap, a full line of the famous "Perfection" tooth brushes, a new marine lint for disinfectant purposes, and other attractive things, in the care of his representative, Mr. D. Pringle, a young man of great business tact.

Messrs. Tarrant & Co., proprietors of Tarrant's Seltzer Aperient, make a fine exhibit of fluid extracts, fine drugs, powdered goods, vanilla beans. They also show a small can of genuine Otto of Roses, worth only $400, and a jar of pretty Spanish flies, used for blistering purposes. This house evidently went to a great expense to bring this exhibit over here. They are well represented by L. D. Collins. Messrs. John Wyeth & Brother, the well-known manufacturing pharmaceutists of Philadelphia, located at 1412 Walnut street, show a fine array of pharmaceutical preparations, especially compressed pills and fluid extracts, and many other specialties that are gaining for this house a national reputation.

Mr. S. Gerhard & Son exhibit spread plasters. The Enterprise Manufacturing Company, of Philadelphia, a drug press. Messrs. Turner & Wayne, of Philadelphia, soaps, perfumery, and drug sundries. Mr. C. L. Lochman, Smith, Kline & Co., and President Charles A. Heinitsh also assisted to make the exhibit attractive.

Under the charge of M. N. Kline, of Philadelphia, about forty-seven members and ladies left Allentown at 9 A.M., Wednesday morning, for a trip to Mauch Chunk and a ride over the Switchback. After a delightful run over the mountains, the party returned to Mauch Chunk where they partook of an elegant dinner at the American House. A vote of thanks to Mr. Kline and the firm he represents was passed and complimentary speeches made by Messrs. Heinitsh and Durham. At Allentown the company separated, going in different directions to their homes.

Kansas State Pharmaceutical Association.

The first meeting of this Association was held at Topeka, Kansas, on June 24th. At this meeting the following officers were elected:

President, R. J. Brown, of Leavenworth; *First Vice-President*, B. W. Woodward, Lawrence; *Second Vice-President*, W. C. Johnson, Manhattan; *Secretary*, G. A. Chapman, Atchison; *Assistant Secretary*, F. E. Holliday, Topeka; *Treasurer*, J. G. Northcraft, Abilene; *Executive Committee*, Geo. A. Eddy, Leavenworth; J. W. Scott, Iola; H. K. Rowley, Topeka; W. A. Stamford, Florence.

The following gentlemen were selected as delegates to the American Pharmaceutical Convention, to be held in Saratoga, N. Y., on Sept. 15th, 1880: Messrs. G. A. Chapman, Geo. Ferdinand, Oscar Seitz, H. D. Trickey, and T. F. Sturtevant.

The following resolutions were passed relative to the establishment of a Kansas College of Pharmacy:

Resolved, That it is the sense of this Association that there should be in the State of Kansas a College of Pharmacy for the education of young men intending to become druggists, who, in the absence of such an institution, are obliged to go into other States, at no small expense, to obtain that which should be furnished within the limits of our own commonwealth.

Resolved, Therefore, that the Executive Committee of this Association be instructed to prepare and present a memorial to the Legislature of the coming winter, setting forth the present lamentable condition in relation to the dispensing of drugs, medicines and poisons, and the protection which public safety demands in this regard, and praying that body to appropriate the sum of $1,000 annually for the establishment and continuance of a chair of Pharmacy and Materia Medica in the State University, such chair, the chair of Chemistry and that of Botany together to constitute the State College of Pharmacy.

The following committees were appointed: Upon Legislation: Messrs. W. W. Woodward, A. E. Barnes, Professor Patrick, T. F. Sturtevant, H. D. Trickey, Oscar Seitz, F. E. Holliday, T. J. Bokman, H. W. Spangler, and Dr. Fleming. With this committee the Executive Committee were to act, with the intent to propose and procure what legislation was necessary to the advancement and protection of the druggists of the State.

Upon Trade and Commerce the committee is as follows: C. J. Burtin, chairman, Fredonia, Wilson Co.; W. A. Stamford and C. B. Bickford.

Upon Queries: Messrs. John T. Moore, of Lawrence; Geo. A. Ferdinand, of Emporia; and E. A. White of Dephos.

The next meeting will be held at Topeka, Kansas, on the first Wednesday in June, 1881.

Kumyss (*Imitation*).—The following two formulæ are given by E. Stefke in the *Pharmaceutische Zeitung:*

1. 30 parts of very old cheese are rubbed up with 1,500 parts of unskimmed cow's milk, 120 parts of milk-sugar are added, the whole introduced into a wide-mouthed flask of the capacity of 2,000 parts, and allowed to stand in a place having a temperature of 30–35° C. After 24 hours fermentation begins, when the mixture must be from time to time agitated. The above temperature must not be kept up over two days, but at the end of 48 hours the flask must be placed into a warm spot, and after 2 more days it is transferred to champagne bottles, which are tightly corked and placed on their sides for 4 days longer, after which the kumyss is ready. 150 parts of the above mixture are reserved for the next operation in place of the cheese.

2. Take a champagne bottle, for which a good-fitting cork is ready, and fill it with good, fresh cow's milk, so that a space of 1 inch remains between the liquid and the bottom of the cork when inserted. Then add for every litre of milk 30 gm. of powdered sugar and shake well; afterwards 2 pieces of compressed yeast, each of the size of a pea, and previously softened by soaking in a little water. Shake the contents of the flask thoroughly, allow it to stand for 2 days in the room, then put it into a cool place (the cellar, etc.) for 3 days, shaking occasionally. On the 5th day it is ready for use, and it remains serviceable for about 14 days longer. The compressed yeast must be fresh, not sour. The breaking of the flasks may be prevented by filling them only as far the neck and keeping them *upright* in the cellar.

Good kumyss must be a homogeneous milky liquid, of the consistence of thin cream; on being poured out it should effervesce and neither be lumpy nor have a taste like butter-milk.

Chinese Varnish.—This is prepared by mixing three parts of freshly-beaten defibrinated blood with four parts of slaked lime and a little alum. The thin-liquid mass may be used at once. Paste-board coated with it is said to become as hard as wood. Straw baskets may be rendered by it water and oil tight.—*Polyt. Notizbl.*

BIBLIOGRAPHY.

PHOTOGRAPHS OF MEDICINAL PLANTS FROM NATURAL SPECIMENS. By C. L. LOCHMAN, of Bethlehem, Pa.

THE excellent series of photographs of Medicinal Plants, of which we have noticed the first set of 54 in our April number, p. 117, has been continued, and the author has now finished the following: *Acorus Calamus* L., *Caulophyllum thalictroides* Mich., *Iris versicolor* L., *Polygala Senega* L., *Vaccinium crassifolium*, *Trillium erectum* L., *Veratrum viride* Ait., *Epigæa repens* L., *Valeriana officinalis* L., *Arisæma triphyllum* Torrey, *Viburnum prunifolium* L., and *Viburnum Lentago* L. (on one plate), *Menispermum Canadense* L., and *Anthemis arvensis* L. The present series is even better than those which preceded it. Mr. Lochman writes to us that Polygala Senega is becoming very scarce in the Middle States, and is very rare further north. The price of the photographs is $1.50 per dozen *mounted*, and $1.20 unmounted; but Mr. Lochman recommends that purchasers will order them mounted, because they can be more nicely finished and are not so liable to be injured by carriage. Those who prefer to order the unmounted prints, however, may paste them in a scrap-book, such as they are manufactured expressly for photographs.

PHOTOGRAPHIC ILLUSTRATIONS OF SKIN DISEASES. By GEO. HENRY FOX, A.M., M.D. Forty-eight colored plates taken from life. New York: E. B. Treat, No. 757 Broadway.

PARTS 11 and 12 of this atlas have come to hand, and illustrate the following conditions: Herpes facialis, Hydoa bullosum, Erythema circinatum, Erythema exfoliativum, Purpura simplex (11), Cornua cutanea, Alopecia areata, Morphœa, Scleroderma, and Sarcoma pigmentosum (12).

These concluding fasciculi are among the most successful of a series which is already distinguished for its excellence. Owing to the success with which its publication has been received, its author announces a new series illustrating the cutaneous lesions of syphilis.

PREIS-LISTE für Abnahme grösserer Quantitäten von E. DE HAEN, Chemische Fabrik: List vor Hannover. April, 1880.

PREIS-COURANT des Mechanischen Instituts von George Westphal in Celle (Provinz Hannover). 1880. (Price-list of Balances and Weights of Precision.)

PRICE-LIST of Chemical Apparatus for sale by Elmore & Richards, 4 Murray street, New York. May 1st, 1880.

THIS handsome catalogue of 132 pages contains a list of the most varied appliances and apparatus used by chemists, physicists, or other similar professions. The firm assure us that every article quoted in the list is actually in stock, so that orders need not be delayed. The prices appear to be very reasonable.

CATALOGUE OF THE ALUMNI, OFFICERS, AND FELLOWS OF THE COLLEGE OF PHYSICIANS AND SURGEONS, Medical Department of Columbia College, New York City, 1807 to 1880. Edited by Dr. A. E. M. PURDY. New York: 1880, 8vo, pp. 177.

THIS catalogue, just published, contains the names of 3,584 alumni; of 18 who received honorary degrees, and 2 who received *ad eundem* degrees. It contains a brief account of the history of the school, and a roster of its officers, professors, and assistants from its foundation. It is published in attractive form.

PROCEEDINGS OF THE CONNECTICUT PHARMACEUTICAL ASSOCIATION at the Fourth Annual Meeting (Feb. 4th, 1880). 8vo, pp. 75.

BESIDES the minutes of the meeting, the Report contains several pages of "Pharmaceutical Notes," after the manner of those contributed to the Report of the Am. Pharm. Assoc'n by Prof. Diehl; an Act relating to the sale of Medicines and Poisons in Connecticut; a report by M.

F. P. Dickinson on the Indigenous Plants of Connecticut; a report by Mr. C. G. Loyd on the same subject; "Inodorous Disinfectants," by Philo W. Newton; "Stores and Better Pharmacists," by S. R. McNarny; "Beeswax and its Adulterations," by S. G. Norris; "Sale of Liquors by Druggists and Pharmacists," by N. Dikeman; "Differing from Officinal Formulas," by S. F. Cram; "Elixir of Pepsine with Bismuth," by T. F. Main; a list of queries to be answered at the next meeting, etc.

PREIS-COURANT Chemisch-Pharmaceutischer Apparate und Geräthschaften. Von Hammer und Vorsak. Wien. Opernring No. 21. 8vo, pp. 72. Profusely illustrated.

THIS is a handsomely gotten-up price-current of chemical and pharmaceutical apparatus and appliances of all kinds, many of which are of styles only used on the Continent of Europe, and might also find a sale in this country.

Among other things we draw attention to a very complete collection of over 3000 paper-labels, in 3 sizes, for bottles, drawers, jars, reagents, etc., both on *white* and on *orange* colored paper, price fl. 8.50 (about $4.25, in Vienna).

NEW BOOKS.

Gerrish (F. H.). Prescription Writing: Designed for the Use of Medical Students who have never studied Latin. 3d ed., 16mo, pp. 55, Portland (Me.). 3*s.*

Lunge (Dr. George). A Theoretical and Practical Treatise on the Manufacture of Sulphuric Acid and Alkali. Vol. 2, 8vo, London. 36*s.*

Rufus (Ephesius). Œuvres de Rufus d'Ephèse. Texte et Traduction. Commencée par Daremberg et Terminée par Ch. Emile Ruelle. 8vo, Paris. 12 fr.

Meaux-Saint-Marc (Ch.). L'Ecole de Salerne. Traduction en Vers Français. Avec le Texte Latin et suivie de Commentaires. 18mo, Paris. 7 fr.

Lomans (J.). A Manual of the Alkali Trade, including the Manufacture of Sulphuric Acid, Sulphate of Soda, and Bleaching Powder. 232 illustr. Roy. 8vo, pp. 376, London. 52*s.* 6*d.*

Harris (Vincent) and **Power** (D'Arcy). Manual for the Physiological Laboratory. 8vo, pp. 120, London. 3*s.* 6*d.*

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Del Mar (A.). A History of the Precious Metals, from the Earliest Times to the Present. 8vo, London, 1880, pp. 382. $3.00.

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Lupton (N. T.). Elementary Principles of Scientific Agriculture. 12mo, pp. 107, New York. 2*s.* 6*d.*

Barber (George). A Synopsis of the British Pharmacopœia, for the use of Dispensers and Students. 32mo, pp. 38, London. 1*s.*

Rattan (Volney). A Popular Californian Flora. 2d ed., 12mo, illust., San Francisco. 9*s.*

NOTES, QUERIES AND ANSWERS.

Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us, as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its use and reputed effects, in order to enable us to make inquiry without waste of time and labor. When it can conveniently be done, send also a specimen of the label used on packages of the compound.

No. 745.—**Burrow's Solution** (O. P. S.).

This is a solution of acetate of aluminium, which is prepared by mixing a solution of 100 p. of acetate of lead in 300 p. of distilled water, with a solution of 66 p. potash-alum and 12 p. crystallized sodium sulphate in 500 p. of water. After stirring, the mixture is left to itself for 2 days and filtered, without washing the residue. The solution must be kept *cold*, otherwise it will contain more than traces of lead.

This formula, which is given after Hager, may be replaced by another, in which the use of a lead-salt is dispensed with, and which has lately been proposed by the same author.

It should first be stated that alumina is soluble in acetic acid *only* if it is fresh, or completely amorphous. But alumina, like ferric oxide, has a tendency gradually to pass into a crystalloid condition, which may be produced at once by the agency of heat. Even a perfect solution, prepared in the cold, of acetate of aluminium, if warmed, will speedily deposit a crystalline acetate which is no longer soluble in acetic acid. Hager, however, has found that the presence of *glycerin* prevents the transition of amorphous alumina into the crystalloid condition, so that a solution of the acetate may even be boiled without producing any precipitate. The following is Hager's process for producing

An 8% Solution of Acetate of Aluminium:

Mix 100 p. of potash-alum and 8 p. of the officinal (*Germ. Ph.*) aluminium hydrate, previously triturated and mixed with a little of the alum, with 160 p. of distilled water in a flask, and heat the mixture to boiling, gently agitating meanwhile, to prevent the alumina from caking on the bottom. When the liquid boils, the alum is converted into the $\frac{2}{3}$-acid salt. The liquid is now, under repeated agitation, allowed to cool below 16° C., 84 p. of sodium acetate, in small fragments or coarse powder, are added, and the whole set aside for 4 hours, occasionally agitating, after which time the formation of a $\frac{2}{3}$-acetate of aluminium is completed. To the mixture is now added, in small portions (to prevent its getting warm), as much alcohol as is necessary to bring it to 620 parts, and the whole is put into a very cool place, where it is occasionally stirred or agitated. If it is desired to remove the alkaline sulphates as much as possible, the mixture should be left standing at a temperature of 8–10° C. for 24 hours. The liquid is then rapidly poured off from the residue, through a small linen strainer placed in a glass funnel, into a bottle, the saline mass is firmly expressed, and the whole liquid finally filtered in a covered filter. The filtrate amounts to about 420 parts, and is mixed, first with 20 parts of acetic acid, and afterwards with sufficient glycerin to bring it to 500 parts (*Hager* in *Pharm. Zeitung*).

This solution diluted with 9 or 10 times its quantity of water yields a liquid about equal in strength to Burrow's solution.

No. 746.—**Parisian Polishing Powder** (Subscriber).

We find the following formula:

Mix equal bulks of levigated ferric oxide and carbonate of magnesium. This is applied by means of a rag wetted with alcohol or water to objects of steel, copper, silver, gold, and other metals, to which it imparts, by friction, a high degree of gloss. Finally, they are dried by rubbing with soft leather.

No. 747.—**Salicylate of Zinc Plaster** (A. M.).

Like tannate of lead, this is used as an application to bed-sores, or other excoriations. It is prepared, according to Hager, as follows:

Oxide of zinc	5 parts.
Salicylic acid	20 "
Olive oil	10 "

Mix intimately, and add

Zinc ointment	165 "

Make into a plaster by applying a gentle heat over a water-bath, and then pour it into paper or pasteboard boxes.

No. 748.—**Toilet-Vinegar** (K.).

The following formulæ are recommended:

1.

Oil of bergamot	7½ parts.
" lemon	7½ "
Eau de Cologne	7½ "
Ext. of vanilla (50 gm. to 1 litre of alcohol)	7½ "
Acetic ether	15 "
Oil of neroli	1½ "
" rose	1½ "
Acetic acid, glacial	30 "
Alcohol	300 "
White wine vinegar	750 "

The essential oils are dissolved in alcohol, the solution mixed with the other liquids, the mixture digested for ten or twelve days, and then filtered.

2.

Oil of lemon	10 parts.
" bergamot	10 "
Essence of reseda	35 "
" violets	35 "
Alcohol	200 "
White wine vinegar	800 "

The essence of reseda is prepared thus:

Reseda pomade	500 parts.
Tincture of balsam of Peru (50 gm. in 1 litre)	20 "
Alcohol	800 "

The essence of violets is prepared thus:

Violet pomade	600 gm.
Tincture of tolu (50 gm. in 1 litre)	20 "
Alcohol	100 "

3. *Mallard's Toilet Vinegar.*

Musk	0.06 gm.	=	1 grain.
Oil of rosemary	0.4 "		6 "
" lavender	0.5 "		8 "
" Portugal	1 "		15 "
" neroli	1 "		15 "
" bergamot	4 "		60 "
" cedrat	4 "		60 "
" lemon	4 "		60 "
" Portugal	4 "		60 "
Tincture of benzoin (100 gm. to 1 litre of alcohol)	20 "		300 "
Tincture of tolu (as above)	20 "		300 "
" krameria	2 "		30 "
Alcohol, 80%	1,000 "		2¼ lbs. av.
White wine vinegar	300 "		10½ oz.

No. 749.—**Leiogomme** (Dr. F.).

Leiogomme or (corrupted) Leiocome, is a name for commercial dextrin. It is derived from λεῖος smooth, or rather, λειόειν, to smoothen, and κόμμι, gum; and was so named because it is used as a finishing or glazing medium for woven fabrics.

No. 750.—**Tannate of Lead** (A. M.)

Tannate of lead is used externally as an application to bed-sores, ulcers, burns, etc. It may be employed either dry, in which case it may be applied by dusting, or in form of ointments prepared from the dry tannate, or finally, in form of a pulp, which is officinal in the German Pharmacopœia under the name *Plumbum tannicum pultiforme*, or pulpy tannate of lead. It is also called Cataplasma ad decubitum (cataplasm for bed-sores), Unguentum ad decubitum Autenriethi (Authenrieth's salve for bed-sores), etc. This is made as follows:

40 parts of cut oak-bark are covered with a sufficient quantity of water, and boiled for half an hour, so that the liquid, when strained, will amount to 200 parts. The liquid is filtered, mixed with 20 parts of solution of subacetate of lead, the precipitate collected on a filter, and allowed to drain until it weighs 60 parts. It is then, while still moist, transferred to a jar, and 5 parts of alcohol are added.

This pulpy tannate of lead should be prepared freshly when wanted, but it may be kept for a short time, not over a week, without spoiling.

No. 751.—**Colored Parchment Paper** (Iowa).

Artificial parchment may be dyed with aniline colors, like animal fibre, without mordants. On account of its firmness, it is used, in all sorts of colors, in the manufacture of artificial flowers and grasses.

No. 752.—**Aluminium-Bronze** (J. F.).

This is an alloy composed of 90 parts of copper and 10 parts of aluminium, forming a mass resembling in color 18 karat gold, and retaining its color and gloss permanently. It is malleable and ductile, may be hammered hot or cold, is twice as elastic as brass and four times as elastic as gun-metal. Since its first discovery, it has been used for the most varied objects, as for instance, for buttons, keys, helmets, sword-scabbards, saddle and harness trappings, watches, watch-chains, etc. As it is very tough and resists friction, it would be an excellent substance for bearings; but its high price has so far prevented its universal introduction for this and many other useful purposes.

No. 753.—**Abobra** (Subscr.).

In our vol. for 1877, on page 234 (not 23, as is erroneously printed in the index, under Abobra) we gave an account of Tayuyá (de abobrinha), or Abobra, either of which is the native Brazilian name of *Dermophylla pendulina* Manso, which has acquired some reputation as a remedy in certain cutaneous diseases.

Valerianic Acid.—H. HAGER recommends to make the monohydrated acid officinal instead of the terhydrate, because the former may now be readily obtained. The monohydrate must be tested for butyric acid and also for valeraldehyde. Butyric acid is detected by adding to a solution of 1 part of the acid in 30 of water a solution of cupric acetate, when a cloudiness or precipitate will make its appearance if butyric acid was present. Valeraldehyde is detected by adding to 2 parts of the acid 3 parts of ammonia and afterwards 150 parts of cold water. After strongly agitating, the liquid must become entirely clear, or at most but faintly opalescent, if the aldehyde was absent.—*Pharm. Centralh.*

A Novel Cinchona Bark. — The *Pharmaceutical Journal and Transactions* says that a large quantity of the singular bark known as *China cuprea* has lately been offered for sale in the London market. The bark is readily distinguished from all other cinchona barks by its remarkably smooth inner surface, which is very fine-grained. It yields about 1.75% of quinia, and has a short fracture, like hard Carthagena bark, but contains a quantity of red coloring matter which is not easily separable from the alkaloids.

PRESCRIPTIONS AND FORMULÆ.

We shall be obliged if our readers, who make use of these formulæ, will inform us of their experience with them, and note any errors or modifications worthy of attention.

Chillie Paste for Rheumatism.—

Olive oil.....2 lbs.
Powdered chillies.....½ lb.

Boil for six hours and add 6 oz. melted spermaceti. Scent with oil of lavender, q. s.—W. H. BROWN, in *Pharm. Jour.*, May 1st.

Chloroform-Gargle.—

Alcohol.....100 parts
Chloroform .....5 to 10 parts
Oil of peppermint.....5 to 10 parts

This is said by Dr. Schoffer to unite the properties of a disinfectant, roborant and anodyne, for various forms of dental narcosis. The same author also found chloroform to be the most prompt agent for arresting bleeding after the extraction of a tooth, by washing out the alveolus with it.—*Ph. Zeit. f. Russl.*

Depilatory in Favus (DR. CLAUDAT).—

℞ Sodii carbonatis.....	4.	gm. =	1 ʒ
Calcis vivæ, pulv.....	2.	" =	½ ʒ
Carbonis, pulv.....	0.50	" =	8 grs.
Glycerinæ.....	5.	" =	75 "
Adipis.....	25.	" =	6½ ʒ

M. Fiat unguentum.

If this ointment is applied, the skin assumes, after an interval of from 6 to 12 days, a rosy tint which is very readily recognized, and which marks the period at which depilation may be commenced. The hairs which it is desired to remove having been cut to within about 2 cm. of the skin, they may be seized and pulled out without the slightest difficulty. After this, a lotion of corrosive sublimate (5%) may be applied for 18 days, and afterwards Goa ointment.

Volkmann's Antiseptic Liquid.—

Thymol..... 1 part.
Alcohol ..... 10 parts.
Glycerin..... 20 "
Water.....100 "

This solution is used by Prof. Volkmann in place of that recommended by Lister, both for operations and for dressings.—*Journ. de Pharm.*, April, 335.

Inhalation in Chronic Laryngitis.—

Oil of Eucalyptus .....3 to 5 gm.		=	45 to 80 grs.
Alcohol.....	75	" =	3 fl. oz.
Distilled water.....170		" =	5½ fl. oz.

Dissolve the oil in the alcohol, and gradually add the water. This liquid is introduced into a spray-apparatus, and applied four times daily, for 10 or 15 minutes at a time. The vapors produce a copious expectoration. It is beneficial in bronchitis and in chronic laryngitis; also in catarrh of the nasal fossæ, and of the pharynx.—M. MOSLER in *Petit Mon. de la Méd.*

To fasten Metallic Letters on Glass.—A good cement for this purpose is to mix the following: Mix 2 parts of finely powdered litharge and 1 part of dry white lead with a mixture of 2 parts of boiled linseed oil and 1 part of copal varnish, until a doughy mass results.

Caustic Crayons.—Five parts of nitrate of silver, with one part of nitrate of lead, being melted together, can be cast into crayons which are not easily broken, and which may be sharpened to a point, like a lead-pencil. This is a suggestion of Dr. Sawostizki, of St. Petersburg. —*Boston Med. and Surg. Jour.*

Application in Diphtheria.—

Lactic acid.....10 parts.
Water.....30 " M.

Dip a pencil into the liquid, and paint the false membranes with it every 15 minutes. At the same time a mixture of chlorate of potassium and of chloride of iron is administered internally. Every 2 or 3 hours some nourishment is given, and in the sick-chamber an abundant supply of moisture is to be maintained.—D. KINGSFORD in *Petit Mon. de la Méd.*

Liquid Glue.—100 parts of ordinary gelatin are dissolved in 400 parts of water containing 6 to 7 parts of oxalic acid. The solution is kept for 5 or 6 hours on the water-bath, in a porcelain infusion pot, after which it is neutralized with carbonate of calcium, the insoluble precipitate filtered off, and the clear filtrate evaporated at a moderate temperature, until about 200 parts are obtained. The product is a durable, slightly tinted, but clear liquid glue.—*Pharm. Central-Anz.*

Marking-Ink for Linen, etc.—Moisten the place first with a solution of soda and gum arabic; then iron it with a warm sad-iron, and write upon it with a goose-quill dipped into a solution of 1 part of chloride of platinum in 8 parts of water. When the writing is perfectly dry, it is traced over again with a solution of 1 part of stannous chloride in 16 parts of water. The writing then immediately assumes a brilliant purple color.—*Pharm. Zeit. f. Russl.*

TRADE NOTES AND NOVELTIES.

Gem Face Powder Sachets is the name given to a neat sachet made of flannel and chamois leather filled with a cosmetic powder that is guaranteed to be harmless. The sachet is inserted into a pocket-like case of pasteboard and gray linen, bound at the edges with leather, so as to be available for carrying in the pocket or travelling-bag. They are made by the ENTERPRISE MANUFACTURING CO., of 23 E. 14th st., and according to the style of the case and the addition of a small mirror, will retail for 25 to 75 cents each. They should be attractive goods for warm weather.

CAZWELL & HAZARD, of this city (cor. of Broadway and 24th st.), have a supply of the **Fig-Meal Coffee** which we commented upon some months since. At that time, our sample came from London, Eng., and subsequent inquiry by those who wished to use it failed to find any in the market. This coffee substitute forms an agreeable beverage which is free from the effects upon the nervous system that sometimes renders the use of coffee undesirable.

From W. R. WARNER & Co., of Philadelphia, we have received samples of **Dukehart & Co.'s Malt Preparations,** manufactured at Baltimore, Md. Without containing alcohol, they are said to be derived from malt and hops, and to consist largely of glucose and dextrin, the nutritive values of which are added to the catalytic power of diastase and the tonic virtues of the lupulin. These preparations are more fluid than are most of the malt preparations sold, a difference consisting, it may be, in the presence of a larger proportion of water, but one which enables them to be more readily taken. The excessive sweetness of some malt extracts, rendering them distasteful to many patients, is covered in these, apparently, by the slight bitter derived from the hops, and that, in many cases, is no small advantage. Besides the simple form, there are combinations with hypophosphites, cod-liver oil, citrate of iron and quinia, and wine and iron, so that there is quite a choice of agents.

The form in which the preparations are put upon the

market is quite attractive, and admits of the bottle being kept on the side-board without suggesting the presence of a medicine or "stomach bitters."

From **Cusset,** near Vichy, in France, come **Alkaline Mineral Waters,** closely resembling in physical and therapeutical properties those derived from the well-known springs. There are, however, certain differences, to judge from the circular accompanying the samples lately sent us by MR. S. SANDERS NECK, the agent for these waters in the United States and Canada. According to the analysis there published the most notable feature is the presence of about five times as much of the magnesium salts in the Cusset waters as exist in those of Vichy proper, while the proportion of alkaline carbonates is also somewhat greater.

The remedial powers of this class of waters is already well-known, and it is found that as beverages during warm weather, or where there is a liability to disturbance of the chylo-poietic organs, they may also be used with advantage. We can certainly say that the samples of the Elizabeth and St. Marie waters which we have tried are exceedingly palatable and aid digestion; and we have no doubt that their use in suitable conditions of disease will be found very advantageous.

NEW PATENTS.

[*Complete specifications and illustrations may be obtained of any one or more of the following patents by sending the number, title, name of patentee, and date of issue, with twenty cents for each copy, to the Commissioner of Patents, at Washington, D. C., together with the name and address of the person requesting the same.*]

June 1st, 1880.

228,300. *Manufacture of Artificial Indigo Blue.*—Adolf Baeyer, Munich, Bavaria, Germany. The process of developing artificial indigo-blue in or upon a texile fibre, yarn, or cloth, whether knit or woven, by impregnating said fibre, yarn, or cloth with a solution of a mixture of orthonitrophenylpropiolic acid, an alkali, and a deoxidizing agent, such as glucose, and then submitting the fibre, yarn, or cloth to heat, or by any other method that will produce the same result.

228,315. *Apparatus for Generating Soda-Water.*—John Collins, Brooklyn, N. Y.

228,328. *Process of Making Artificial Parchment Paper.*—Louis H. G. Ehrhardt (Chas. H. Brutton, administrator), Philadelphia, Pa. 500 lbs. of pulp, 2 gall. silicate of soda, 4 to 5 lbs. of alum, and 8 to 10 lbs. chloride of zinc.

9,226 (Reissue). *Process of Extracting Gelatine or Ichthyocolla from Salted Fish-skins.*—J. S. Rodgers, Gloucester, Mass. The salted fish-skins are soaked in cool water and agitated sufficiently to remove the salt and scales. When this is accomplished, the skins are put into fresh water, which is gradually heated to boiling. All superfluous matter is then removed, and the liquid, being strained or filtered, is run into pans or moulds, and allowed to evaporate.

June 8th.

228,433, and 228,434. *Bottle-stoppers.*—Albert Albertson, Jersey City, N. J., assignor to John Matthews, New York, N. Y.

228,519. *Process and Compound for Embalming and Preserving Animal Substances.*—Peter C. Dovernus, Bayonne, N. J. The process of preserving or embalming dead bodies, consisting in removing the brains and intestines, and filling the cavities with cotton, or other absorbent material saturated with a compound of saltpetre, sulphurous acid gas and water, then closing the cavities, and subjecting the bodies to the action of sulphurous acid gas, and finally steeping the bodies in the said compound.

228,582. *Bottle-stopper.*—James J. Allison, Nelson, Illinois.

228,595. *Can-Opener.*—William E. Brock, New York, N. Y., assignor of one-half his right to Anna L. Berrian, same place.

228,625. *Bottling Machine.*—Alexander W. Gillman and Samuel Spencer, Southwark, England.

228,639. *Apparatus for Filling Casks and Bottles under Pressure.*—John C. G. Hüpfel, New York, N. Y.

228,650. *Bottle-stopper.*—John G. Krieger, Washington, D. C.

9,241 (Renewal). *Spectacles.*—Thomas A. Wilson and George W. Meigs, Reading, Pa., assignors to said Thomas A. Wilson.

June 15th.

228,724. *Salve.*—James Bemis, Des Moines, Iowa, A "hoof-salve," composed of alcohol, spirit of turpentine, neat's-foot oil, spirit of camphor, aqua ammonia, beef-gall, sassafrass oil, origanum oil, cedar oil, laudanum, sal-soda, beeswax, lard, and rosin.

228,736. *Faucet.*—Patrick Doran, Brooklyn, N. Y., assignor to Henry C. Mayer & Co., New York, N. Y.

228,794. *Filter.*—Jackson Willsey and Thomas Shiverick, Chicago, Ill.

228,799. *Liquid Measuring Tank and Cock.*—George W. Aldrich, Brooklyn, N. Y.

228,828. *Apparatus for Bottling or Canning Substances.*—Purches Miles, Brooklyn, N. Y.

228,843. *Weighing Scales.*—David Vincent and Désiré Johnen, Paris, France.

228,866. *Fluid Measuring Tank.*—Samuel M. Cawker, Denver, Col.

228,868. *Machine for Washing and Soaking Bottles.*—James S. Clarke, Derby, England.

228,870. *Liniment.*—Daniel Collins, Princess Anne, Md. Consisting of muriatic acid, spirit of ammonia, spirit of turpentine, tincture of capsicum, and sweet or other oil.

228,881. *Preparation of Lime-juice.*—John Douglass and Thomas D. Douglass, San Francisco, Cal. To a mixture of lime-juice, sugar, water, and glycerin add sulphuric acid to preserve it from decomposition, and prevent any change. The compound is useful for making lemonade, being designed to take the place of limes or lemons.

228,889. *Process for Preparing Extract of Coffee.*—David J. Gese and Joseph C. Grant, New York, N. Y., assignors to themselves and Jacob Swivel, same place. First, obtaining the extract of caffeine and volatile oils from ground coffee, by repeated infusions of cold water, then boiling the grounds in hot water to obtain an extract containing the bitter principle, and finally mixing together the two extracts.

228,898. *Condiment Compound.*—Gustavus Holland, San Francisco, Cal. Mixes one quart of wine or cider vinegar with two ounces of glycerin, one ounce each of tinctures of ginger and capsicum, one ounce of fine salt, six drops each of the oils of cloves, cassia, mace, and pimento, and three drops of the oil of capsicum (the oils being "cut" by sufficient alcohol), for use in pickling and preserving fruits.

228,910. *Apparatus for Drawing Effervescent Liquids.*—Thomas Lieb, Woodhaven, N. Y.

228,950. *Faucet.*—Archelaus Spencer, Chicago, Ill.

June 22d.

228,982. *Wood-filling Compound.*—DeWitt C. Cooley, Aurora, and Charles H. Parker, Chicago, Ill. Consists of French talc, sulphate of baryta, marble dust, boiled linseed-oil, japan, and glycerin.

229,014. *Salve.*—William M. Sharetts, Baltimore, Md. Mixes thoroughly, crude petroleum, 2½ gallons; crude turpentine, 20 lbs.; beeswax, 20 lbs.; prepared calamine, 20 lbs.; lard, 40 lbs.; and then to these adds lime-water, 40 gallons. Recommended as a remedy for

"old running sores, scalds, burns, boils, felons, and especially for ladies' gathered breasts."

229,034. *Apparatus for Producing Hydrogen Gas.*—Eugene E. Egasse, Paris, France.

229,042. *Compound for Preserving Food.*—Gilbert F. Holland, Boston, Mass. Dissolves in one gallon of water two ounces of common alum, two ounces of nitrate of potash, and one pound of gum, and in such solution immerses for a few minutes the article or articles of food to be preserved or protected, and then removes them and dries the coating in the air.

229,090. *Concentrating Alkaline Solutions.*— Hugh Burgess, Royer's Ford, Pa.

229,098. *Device for Heating Fluids.*—Charles S. Cumins, Boston, Mass.

229,161. *Coated Caustic Alkali Ball.*—Aron Mendelson, Albany, N. Y.

229,186. *Filter Paper Supporter.*—James O. Robertson, Fall River, Mass.

229,214. *Bottle-Stopper.*—Shelden N. Warren, Bridgeport, Conn.

June 29th.

229,249. *Manufacture of Potassium Sulphate from Kainit.*—Cecil N. Hake, Fulham, England. The production of schönit by (*a*) adding a more or less concentrated cold solution of magnesium sulphate to ground kainit, or the reverse, or dissolving kainit in a hot solution of magnesium sulphate; (*b*) stirring the mixture, if the process is applied cold, whereby the chlorides of sodium and magnesium go into solution and a residue of schönit is formed, or allowing the solution to cool, if the process is applied hot, whereby a deposit of schönit is obtained; (*c*) separating the schönit thus formed as the residue by decantation.

229,293. *Swinging Can.*—F. Cortez Wilson, Chicago, Ill.

229,304. *Draft Tube for Drawing Soda Water.*—William P. Clark, Medford, Mass.

229,393. *Apparatus for Medicating Air.*—Henry R. Fowler, Leadville, Colo.

229,398. *Fruit and Lard Press.*—Edwin D. Grue, Grues, Vt.

229,425. *Fruit Crusher.*—John Lamont, Rochester, N. Y., assignor of one-half his right to Alexander Lamont, same place.

229,431. *Adjustable Gauge for Liquid Measures.*—Thomas F. Longaker, West Philadelphia, Pa. For faucet attachments.

229,460. *Invalid Bedsteads.* — Louis Prince, Jersey City, N. J. A bed pan and urinal attachment.

229,473. *Paint Composition.*—Germaro Rossi, New York, N. Y., assignor of one-half his right to Luigi Marisca, Brooklyn, N. Y. Consisting of refined petroleum, boiled linseed-oil, beeswax, sugar of lead, garlic juice, milk of sulphur, Cayenne pepper, and tallow. All of the ingredients, excepting the milk of sulphur, are mixed together and boiled for about an hour, then strained, and, when tepid, the milk of sulphur is added. A pasty mass is formed that may be used with any ordinary paint of any color, and which may readily be applied with a brush.

229,503. *Automatic Faucet.*—Thos. H. Walker, Kansas City, Mo.

9,272; 9,273; 9,274 (Reissues). *Liquid Cooler for Cooling Liquids under Pressure.*—John Matthews, New York, N. Y., assignee, by mesne assignments of Lucy P. Bigelow, administratrix of Edmund Bigelow, deceased.

July 6th.

229,518. *Acid Phosphate for Baking Powders.*—Chas. A. Collins, Providence, R. I. The process of manufacturing an acid powder or cream of tartar substitute, consisting in treating bone ash with oil of vitriol diluted with excess of water, under agitation and heat, and converting the dihydrogen calcic phosphate formed into hydrogen dicalcic phosphate by the combination with addition elements of base.

229,573; 229,574. *Preparation of Potassium and Sodium Phosphates for Baking Powders.*—George F. Wilson, East Providence, and Charles A. Catlin, Providence, R. I. An acid powder or cream of tartar substitute, an acid potassium (or sodium) phosphate with an excess of base over a dihydrogen potassic (or sodic) phosphate, and having both the acid phosphate and the sulphate of lime present completely hydrated.

229,633. *Bougie.*—Edward Pfarre, Brooklyn, N. Y. The combination in the bougie of a wire or stiffening-core extending part of the way along the instrument, and a flexible body composing the bougie, and having a flexible point extending beyond the stiffening core.

229,667. *Process for the Manufacture of Candy.*—Charles G. Brummer, Detroit, Mich. The process of making candy composed of sugar, grape sugar, and gelatin, consisting in boiling the sugar and grape sugar together with water, adding, when the same are cooked, the gelatin dissolved in water, and mixing the gelatinous solution with the other ingredients without further cooking.

229,705. *Pulverulent Preparation of Phosphoric Acid.*—Eben N. Horsford, Cambridge, Mass. A pulverulent preparation of phosphoric acid substantially free from combination or association with any base, and kept in a state of dry powder by admixture only with a neutral substance like starch.

229,785. *Process of and Apparatus for Coating Pills.*—James A. Whitney, New York, N. Y. The process of coating pills and similar articles with a protective adhesive substance, which consists in passing them between and in contact with the surfaces of soft elastic material charged or supplied with the coating substance.

ITEMS.

Buffalo Pharmaceutical Association.—The retail pharmacists of Buffalo, N. Y., held a meeting at the Tifft House in that city, June 4th; nearly all the principal pharmacies in the city being represented. Dr. J. S. Trowbridge acted as Chairman, and Wm. C. O. Rano officiated as Secretary. The proposed State Pharmacy Law and other matters of mutual interest were discussed.

On motion of Mr. T. Stoddard, the meeting heartily indorsed the action of their representatives at the Syracuse Convention in inviting the State Association to hold its next annual meeting in Buffalo.

A resolution offered by Mr. R. K. Smither, favoring the organization of a permanent society of the city pharmacists, was adopted, and the Chair appointed a committee of five to draft Constitution, By-laws, and Code of Ethics, and report on the first Wednesday in July, when the society will duly organize and elect its officers.

Professor Wœhler.—The eighteth anniversary of the birth of FRIEDRICH WÖHLER occurs on the 31st of July, 1880, and it is proposed by the Scientists of Europe to commemorate this interesting event by presenting to the Nestor of Chemical Science of Germany, a monumental medal of gold, of artistic design and great intrinsic worth.

The chemists of America are invited to join in this movement, and the undersigned have been requested to receive and forward subscriptions.

Owing to the large number of subscribers, each individual contribution is limited to five dollars, which sum can be remitted by postal order or check to Professor Charles F. Chandler, Columbia College, New York.

A prompt reply is requested as no time is to be lost.

Subscribers will please send their titles and full addresses. Those who have been pupils of Wöhler will be good enough to designate the year they were in Goettingen.

It is the desire of the Committee in Germany, of which Prof. A. W. Hofmann, of Berlin, is Chairman, to have fac-similes in bronze of the original medal struck off for

each subscriber, but the execution of this plan will depend upon the sum contributed and cannot be positively promised in advance. Signed,

CHARLES A. JOY.
CHARLES F. CHANDLER.

Verification of Thermometers.—A thermometric bureau having been established by the corporation of Yale College, at the recommendation of the Board of Managers of the Winchester Observatory, the following regulations have been adopted:

Thermometers will be received by the observatory for the purpose of comparison with the observatory standards, and certificates of comparison signed by the Astronomer in charge will be issued with thermometers so compared. These certificates will contain a statement of the corrections to be applied at intervals of five or ten degrees of the thermometer scale to cause it to have the same reading as the observatory standards. In general these corrections will be expressed in tenths of a degree Fahrenheit, or in twentieths of a degree Centigrade.

Thermometers sent for verification must have a name and number engraved upon them; and thermometers which are not graduated on the glass stem must be of sufficiently good workmanship to satisfy the observer in charge that the scale will not suddenly change with reference to the glass stem of the thermometer tube, with ordinarily careful usage.

The Board of Managers have established the following scale of charges for this service, which includes the hall mark and the certificate:

Standard Meteorological Thermometers...	$1.00
Ordinary Meteorological Thermometers...	.50
Ordinary Maximum Thermometers.....	.75
Ordinary Minimum Thermometers.....	.75
Clinical Thermometers.....	.50

There will be a deduction of one-fifth of the above charges where more than eight thermometers of one kind are received at the same time. In the case of clinical thermometers the charge will be four dollars per dozen when not less than two dozen are sent at the same time.

For other thermometers than the above the charges for verification will be furnished on application.

The letter of advice accompanying thermometers sent for verification should contain the maker's name, the number of each thermometer, and full directions for reshipment.

All proper precautions are taken by the Board of Managers to guard against loss or injury; but as it is manifestly inexpedient that a University Corporation should be responsible for property in its care for such a purpose, it is to be understood that all risks are assumed by the person sending the thermometers.

LEONARD WALDO,
Astronomer in Charge.

"Science."—Those who take an interest in the advancement of scientific study will be pleased to know of the establishment in this city of a new weekly journal called *Science*, which is intended to occupy, in this country, a field similar to that held by *Nature* in England. The new journal is a 12 page quarto of handsome appearance, the subscription price being $4.00 per year, in advance. Among its contributors and supporters we find the names of many who are eminent in this country as scientists, and the first two issues contain a very interesting series of articles. There can be no doubt of its success. The editor is Mr. John Michels, and the publication office is at 229 Broadway.

New Pharmaceutical School in Germany.—On October 15th, 1880, a new pharmaceutical school in Braunschweig will be opened, in which young men are to be specially trained for the wholesale drug trade. Particular attention will be given to pharmacognosy, the recognition of adulterations, microscopical investigations, qualitative analysis, and botany. The course is to comprise two sessions, and the fees for each session are 150 marks.

Adulterated Star-Anise.—According to a report from Holland, a spurious star-anise occurs there in commerce, which consists of genuine star-anise mixed with the fruits of *Illicium religiosum* Sieboldt. This species grows in Japan, and its leaves, stems, and fruit are reputed to be poisonous.—*Pharm. Zeit.*

Colegio de Farmaceuticos de Habana.—The establishment of a College of Pharmacy at Habana, which we have alluded to in our previous number (p. 224), has been consummated by the election of the following officers at a "preliminary" meeting held on April 3d, the account of which appears in the *Repertorio de Farmacia* of June: *President*, Ldo. D. José Sarrá; *Vice-President*, Dr. D. Ramon Botet; *Secretary*, Dr. D. Rafael de Leon; *Vice-Secretary*, Ldo. D. Eligio Villavicencio; *Corresp. Secretary*, Dr. D. Antonio Gonzalez Curquejo; *Treasurer*, Ldo. D. Francisco Torralbas; *Librarian*, Ldo. D. Manuel Johnson.

Botanical Glass-Positives for Lecture Purposes.—We desire to draw attention to a very superior collection of micro-photographs and glass-positives, intended for the illustration of lectures on botany, by Dr. Ludwig Koch, Privat-Docent at the University of Heidelberg. These positives comprise the following series: 1. *Anatomy of Plants*, 3 series of 25 plates each. 2. *Morphology*, 1 series of 25 plates. *Typical illustrations* after Le Maout and Decaisne, 2 series of 25 plates each, illustrating monocotyledonous plants. The continuation, which will comprise dicotyledonous and cryptogamous plants, will appear in series hereafter. Price of each series, in elegant box, 30 marks. May be imported through Wm. Wood & Co.

Jamaica Cinchona Bark appeared in the London market for the first time in May and sold for a good price, the red fetching 4*s.*, and the crown bark 6*s.* per lb., the latter price being rather less than the bark deserved. The government plantations of Jamaica will yield about $25,000 worth of bark this year.—*Pharm. Journ. and Trans.*

Introduction of Foreign Plants into Australia.—DR. RICH. SCHOMBURGK has published a list of plants which have been introduced, mostly accidentally, in Australia during the last twenty-five years. Some of the author's statements are of general interest.

Fœniculum vulgare Gaert., was introduced very many years ago and has spread astonishingly. It particularly prefers the shores of small rivers where it often grows to the enormous height of 4 to 6 feet, forming regular thickets and suppressing smaller plants.

Xanthium spinosum L. This plant, so dangerous for sheep-culture, has made a very rapid growth since about 1850, and *Onopordum Acanthium* L. since 1845. The latter grows so rapidly and luxuriantly that it forms impermeable thickets and sends up flowering stems of 4 to 6 feet high. Thousands of pounds sterling have been spent in their eradication, and laws have been passed compelling settlers to destroy any of these plants which make their appearance on their grounds.

Datura Tatula L. About two years ago this made its appearance in waste places and along water courses of South Australia. Many horses have been poisoned by it.

Hyoscyamus niger L. has also made its appearance only a few years ago in waste places.

Urtica dioica L., *U. urens* L., *Lolium temulentum* L., *Rumex crispus* L., and a few others which have made their appearance at different times, are very injurious to agriculture. Dr. Schomburgk also calls attention to the fact that Australia will in time be a great producer of materials for perfumery. The most important odoriferous plants, such as Reseda, Verbena, Jasmine, Roses, Lavender, Acacia farnesiana, Heliotrope, Rosemary, Peppermint, Violet, Wall-flower, Laurel, Orange, and Geranium appear to flourish better and more luxuriantly in Australia than anywhere else.

Collodion as Coating of Cigars.—A German patent (No. 8727, of August 8th, 1879) claims protection for the employment of collodion as a coating for cigars, to prevent the unravelling or tearing of the wrapper. The cigars are simply dipped into collodion of a suitable consistence, and this causes them not only to be more tight, but also to resist softening at the small end while held in the mouth. Nothing is said about the effect of the collodion upon the taste.

Artificial Slates and Black-Boards.—The United Rubber factories of Harburg and Vienna have obtained a patent for the manufacture of artificial slates and black-boards, from 10 parts of rubber, 16 of powdered pumice stone, 21 of bone-black, and 6 of sulphur. The mass is rolled out at 130 to 140° C. and afterwards ground.—*Ind. Zeit.*

Spurious Insect-Powder.—According to the *Pharm. Zeit.*, the adulteration of insect-powder in Germany seems to have made considerable progress. Samples of the powder, obtained from a respectable firm, contained 1½% of chromate of lead, and left, on incineration, 10.5% of ash. The coloring matter was no doubt added to impart a look of genuineness either to a damaged lot of the powder or to a substitute for the genuine.—*Pharm. Zeit.*

Papaya-Pepsin.—It was not to be expected that the digestive properties of the juice of the papaw-tree (*Carica Papaya*; comp. our last number, p. 209) would long escape the enterprise of manufacturing pharmacists. Messrs. Trouette & Perret (Depot: E. Trouette, 68 rue de Rivoli, Paris) have placed on the market a syrup, an elixir, a wine, cachets, and troches of "papaïne or vegetable pepsin."

The Preservation of Fruit by Burial.—Last January a Californian fruit dealer took two hundred lemons fresh from the tree and buried them in the ground to see how they would keep. Four months after he dug them up and found them in perfect preservation, as sound, fresh, and nice as the day they were buried. Every one knows how well potatoes keep when properly covered by earth. Apples would doubtless do equally well, and possibly the same method may answer for grapes and other more perishable fruit. It would not cost much to try a few experiments in this direction, and success could not fail to be advantageous.—*Scient. Amer.*

Preparation of Uguentum Hydrargyri.—GUSTAV KALLER uses chloroform in triturating metallic mercury with old mercurial ointment. According to him, 6 lbs. of mercury may be intimately triturated in half an hour by the gradual addition of chloroform, yielding an ointment which leaves nothing to be desired.

J. BIENERT adds the remark that, just before the nearly cooled mixture of fats is added to the above mixture of metallic mercury and old mercurial ointment, the latter should be freshly triturated with a little more chloroform. —*Pharm. Zeitsch. f. Russl.*

Silvering by Cold Rubbing.—Make a paste by thoroughly grinding in a porcelain mortar away from the light:

Water	3 to 5 oz.
Chloride of silver	7 "
Potassium oxalate	10½ "
Salt (common table)	15 "
Sal ammoniac	3¾ "

Or:

Chloride of silver	3½ "
Cream of tartar	7 "
Salt (common)	10½ "

Water to form a paste.

Keep in a covered vessel away from the light. Apply with a cork or brush to the clean metallic (copper) surface, and allow the paste to dry. When rinsed in cold water the silver presents a fine frosted appearance, the brightness of which may be increased by a few seconds' immersion in dilute sulphuric acid or solution of potassium cyanide. The silvering bears the action of the wire brush and of the burnishing tool very well, and may also be "oxidized." Should a first silvering not be found sufficiently durable after scratch brushing, a second or third coat may be applied. This silvering is not so adhering or white on pure copper as upon a gilt surface.

For the reflectors of lanterns the paste is rubbed upon the reflector with a fine linen pad; then, with another rag, a thin paste of Spanish white or similar substance is spread over the reflector and left to dry. Rubbing with a fine, clean linen rag restores the lustre and whiteness of the silvered surface. The paste is sometimes mixed directly with the whiting and left to dry, or until nearly dry, then rubbed down as described.—*Scient. Amer.*

On Hydrochlorate (Muriate) of Morphia.—(OTTO HESSE). Hydrochlorate of morphia is less soluble in alcohol than in water; the stronger the alcohol, the less is its solvent power. But on warming, solution may be promoted. If one part of the salt be warmed with twenty parts of alcohol, it is almost immediately dissolved; but very soon afterwards a heavy crystalline mass is deposited. On cooling, a further small quantity of these heavy crystals are produced at first, followed by a copious crystallization in form of needles, so that the whole solution is rendered solid. If heat is again applied, the needle-shaped crystals dissolve, while the granular crystals remain almost entirely undissolved.

These granular heavy crystals may be still more easily obtained by using wood-spirit in place of alcohol. On gently heating, the salt first dissolves, but in a few minutes granular crystals are at once deposited in abundance, and, on cooling, only a small additional quantity is formed. In this case, no needle-shaped crystals make their appearance afterwards; hence by using wood-spirit the heavy form of crystals may be obtained pure.

These crystals were found to be *anhyhrous* hydrochlorate of morphia. Solution in water and recrystallization from this menstruum again produces the common hydrated salt.—*Liebig's Annalen*, 202, 152.

Maryland College of Pharmacy.—At a regular meeting of the College held recently, officers for the ensuing twelve months were elected as follows: *President*, Joseph Roberts; *Secretary*, Edwin Eareckson; *Treasurer*, Wm. H. Osborn; *Examiner*, Louis Dohme. Officers elected in January and holding over are *Vice-President* Wm. S. Thompson, *Examiners* F. Hassencamp, N. H. Jennings. Messrs. Louis Dohme, Chas. R. Pue, Joseph Roberts, F. Hassencamp, and Edwin Eareckson were elected Delegates to American Pharmaceutical Association, and Professors J. Faris Moore, Chas. Caspari, Jr., and Wm. Simon were elected Delegates to Convention of Teaching Colleges of Pharmacy.

PHARMACEUTICAL CALENDAR.—August.

N. B.—The officers of Societies, Colleges of Pharmacy, Pharm. Associations, etc., will oblige us by forwarding schedules of their meetings, lists of officers, and any changes that may be desirable.

Date.	Society Meetings.
3d, Tues.	Phila. Coll. Ph.—Trust. Meet.
5th, Thur.	N. Y. Coll. Ph.—Trustees' Meet.
	Louisville Coll. Ph.—Pharm. Meet.
	Phila. Coll. Pharm.—Alumni Meet.
	Massach. Coll. Ph.—Trustees' Meet.
10th, Tues.	St. Louis Coll. Ph.—Pharm. Meet.
	National Coll. Ph.—Trust. Meet.
	Massach. Coll. Ph.—Pharm. Meet.
	Kings Co. Pharm. Asso.—Monthly Meet.
	Pittsburgh Coll. Ph.—Trust. Meet.
11th, Wed.	Cincin. Coll. Ph.—Pharm. Meet.
12th, Thur.	Newark Pharm. Assoc.—Monthly Meet.
	N. Y. Germ. Apoth. Soc.—Monthly Meet.
	Louisville Coll. Ph.—Directors' Meet.
	Maryland Coll. Ph.—Meeting.
17th, Tues.	St. Louis Coll. Ph.—Trust. Meet.
	St. Louis Coll. Ph.—Alumni Meet.